CDP-EX77

SERVICE MANUAL

AEP Model
UK Model
E Model

CDP-EX77 is the CD player section
in MHC-EX66, DHC-EX77MD/MD77

Model Name Using Similar Mechanism	HCD-MD5
CD Mechanism Type	CDM38A-5BD19
Base Unit Name	BU-5BD19
Optical Pick-up Name	KSS-213B/K-N

SPECIFICATIONS

System: Compact disc and digital audio system
Laser: Semiconductor laser (λ = 780 nm)
Emission duration: continuous
Laser output: Max. 44.6 µW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.
Frequency response: 2 Hz to 20 kHz (± 0.5 dB)
CD OPTICAL DIGITAL OUT
(Square optical connector jack, rear panel)
Dimensions (w/h/d) incl. projecting parts and controls: Approx. 280 × 122.5 × 347 mm
Mass: Approx. 3.7 kg

Design and specifications are subject to change without notice.

COMPACT DISC PLAYER

MICROFILM

SONY®

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the “S curve check” in “CD section adjustment” and check that the S curve waveforms is output three times.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

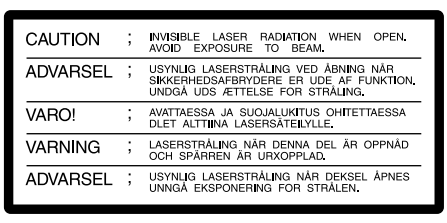
CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.

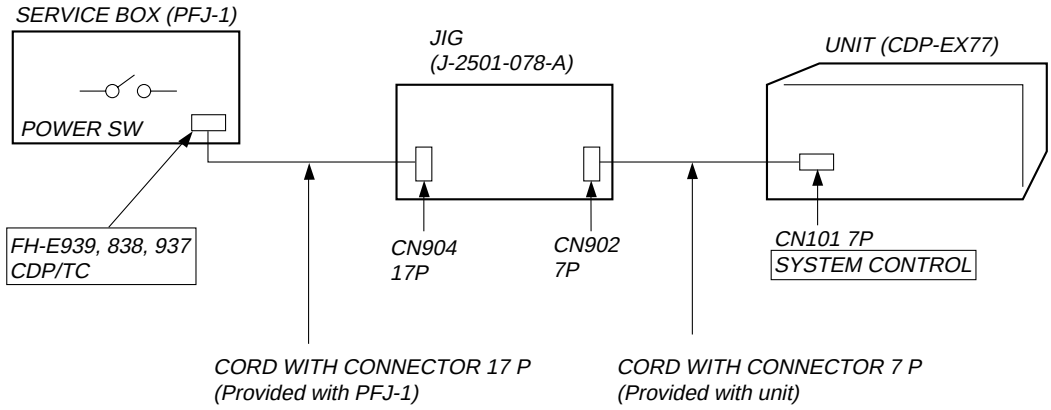

CAUTION ; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL ; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO! ; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA DLET ALTTIINA LASERSÄTEILYLLE.
VARNING ; LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL ; USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

SECTION 1
SERVICING NOTES

1-1. Power Supply During Servicing

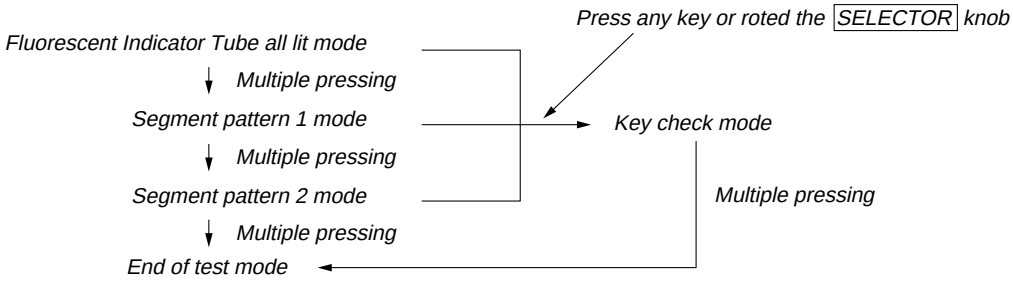
This unit is not able to operate on its own because it does not have its own power supply. During servicing, connect to other units.
Power is supplied when the SYSTEM POWER button of the amplifier (TA-EX66/EX77) is turned ON.
If the other units are not available, use a service box (PFJ-1) and jig (J-2501-078-A).
In this case, press the STOP button and TIME button simultaneously to turn on the power.

[Connection Diagram]



1-2. Fluorescent Indicator Tube/Key Check Mode

After turning on the power, press the STOP button, TIME button, and DISC 1 button simultaneously to perform the Fluorescent indicator tube check.
The steps of the Fluorescent Indicator Tube check mode will proceed onto the next one by the above multiple pressing.
During the Fluorescent Indicator Tube check mode, press any button or rotate the selector knob to set the key check mode.
To end the mode, press the above three buttons simultaneously.

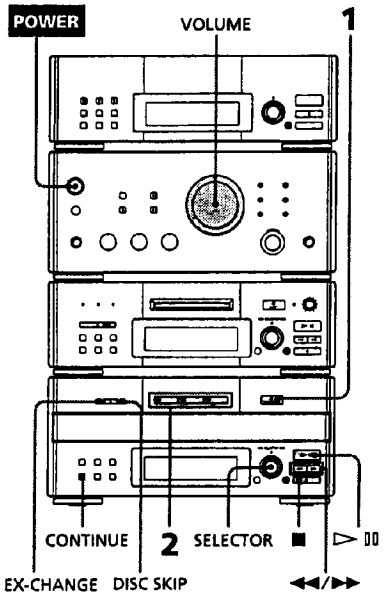


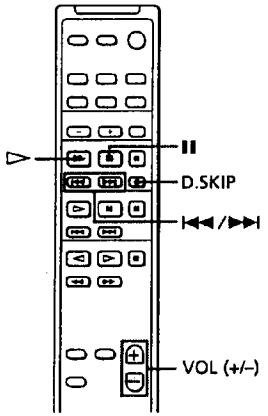
Note 1) When the three buttons pressed to enter the Fluorescent Indicator Tube all lit mode are released together, the Fluorescent Indicator Tube all lit mode will remain on. When released separately, the key check mode will be set soon after the Fluorescent Indicator Tube all lit mode.
In "multiple pressing", if the three buttons are pressed and released together, the next mode will be set. If not, the key check mode will be set.

Note 2) In the key check mode, each time the button is pressed, the "KEY=" number on the Fluorescent indicator tube increases. When the SELECTOR knob is rotated, the "KEY=" number on the Fluorescent indicator tube increases in the + direction and decreases in the – direction.

Playing a CD

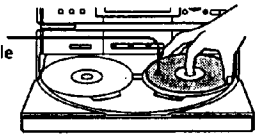
You can play up to three CDs in a row.





1 Press ≙ OPEN/CLOSE and place a CD on the disc tray.

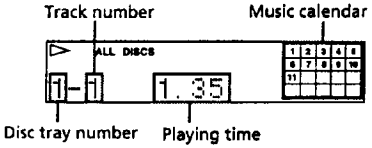
With the label side up. When you play a single CD, place it on the inner circle of the tray.



To place the third disc, press DISC SKIP (or D.SKIP on the remote) to rotate the disc tray.

2 Press one of the DISC 1 – 3 buttons.

The disc tray closes and play starts. If you press ▷ II (or ▷ on the remote) when the disc tray is closed, play starts from the CD loaded on the tray whose button is lit green.



To	Do this
Stop play	Press ■.
Pause	Press ▷ II (or II on the remote). Press again to resume play.
Select a track	Turn SELECTOR clockwise (to go forward) or counter-clockwise (to go back) and release it when you locate the desired track (or press ▶▶I or I◀◀ on the remote). Turn and hold SELECTOR to locate other discs.
Find a point in a track	Press ▶▶ or ◀◀ during play and release it at the desired point.

continued

To	Do this
Select a CD	Press DISC 1 – 3 button or DISC SKIP (or D.SKIP on the remote).
Play only the CD you have selected	Press CONTINUE repeatedly until "1 DISC" appears.
Play all CDs	Press CONTINUE repeatedly until "ALL DISCS" appears.
Remove or exchange the CD	Press ≙ OPEN/CLOSE.
Exchange the CD during play	Press EX-CHANGE. Press again to close the disc tray.
Adjust the volume	Turn VOLUME (or press VOL ⊕ or ⊖ on the remote).

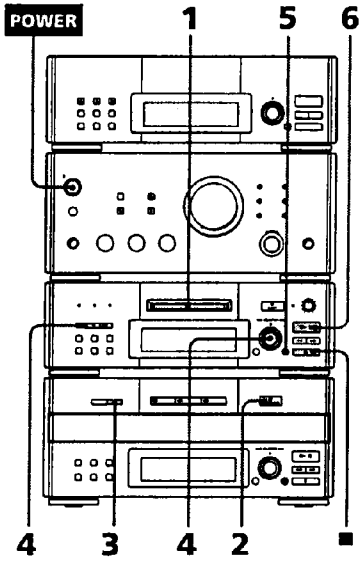
Tips

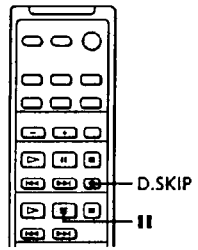
- Pressing ▷ II when the power is off automatically turns the power on and starts CD playback if there is a CD on the tray (One Touch Play).
- You can switch from another source to the CD player and start playing a CD just by pressing ▷ II or the DISC 1 – 3 buttons* (Automatic Source Selection).
  - * Pressing the DISC 1 – 3 buttons works as the Automatic Source Selection feature while normal play or "1 DISC SHUFFLE" is appearing in the display.
- If there is no CD in the player, "NO DISC" appears.
- When the disc tray is selected or the CD loaded on the tray is playing, the DISC 1 – 3 button for the tray is lit green.

Recording a CD on an MD (DHC-MD77/EX77MD only)

— *CD Synchro Recording*

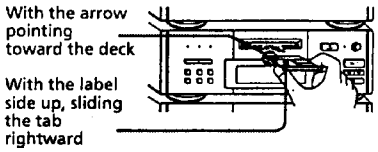
You can make a digital recording of a CD on an MD, marking track numbers in the same sequence as the original CD. In addition, you can record a program of favorite tracks (see page 38), record only the first track on each CD (Hit Parade, see page 40), and edit an MD after recording (see pages 45 to 51).



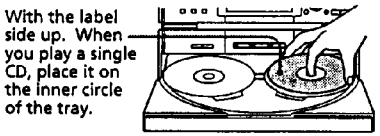


This section is extracted from instruction manual.

1 Insert a recordable MD.



2 Press ⏏ OPEN/CLOSE and place a CD on the disc tray.
The disc tray opens.



To place the third disc, press DISC SKIP (or D.SKIP on the remote) to rotate the disc tray.

3 Press DISC SKIP (or D.SKIP on the remote) repeatedly until the DISC 1 – 3 button you want lights green.

4 Press CD SYNC, then turn SELECTOR on the MD deck until "NORMAL ?" appears.

5 Press ENTER/YES.
The MD deck stands by for recording and the CD is in pause for playback.

6 Press ▷ II on the MD deck (or II on the remote).
Recording starts. The CD player stops and the MD deck pauses automatically when the recording is completed. If there is no remaining recording time on the MD, the MD deck stops.

To stop recording

Press ■ on the MD deck.

While "TOC" lights up or is flashing

Do not move the deck or pull out the power cord to ensure the complete recording. The deck is currently updating the Table Of Contents (TOC).

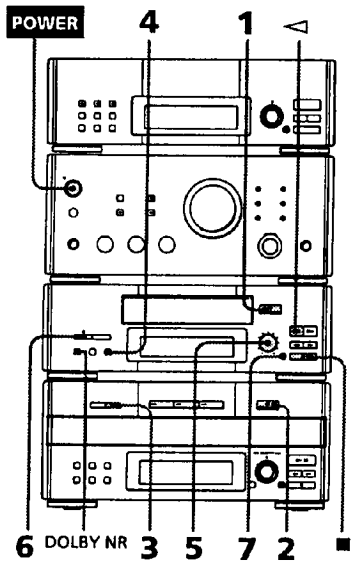
Tip

Inserting an MD when the power is off automatically turns the power on.

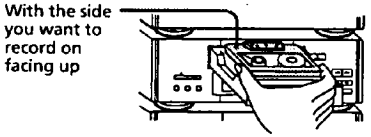
Recording a CD on a tape (MHC-EX66 or the optional TC-TX77 users only)

— *CD Synchro Recording*

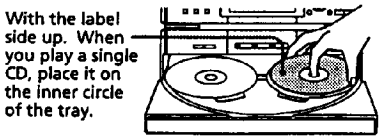
The CD SYNC button lets you record from a CD to a tape easily. You can use TYPE-I (normal), TYPE-II (CrO_2) and TYPE-IV (metal) tapes. The deck detects the tape type automatically.
MHC-EX66 is used for illustration purpose.



1 Press ⏏ OPEN/CLOSE on the tape deck and insert a blank tape.
Press ⏏ OPEN/CLOSE again to close the tray.



2 Press ⏏ OPEN/CLOSE on the CD player and place a CD on the disc tray.
The disc tray opens.



To place the third disc, press DISC SKIP (or D.SKIP on the remote) to rotate the disc tray.

3 Press DISC SKIP (or D.SKIP on the remote) repeatedly until the DISC 1 – 3 button you want lights green.

4 Press DIRECTION repeatedly to select the side you want to record on.
Select ⇉ to record on one side. Select ⇄ or ⇆ to record on both sides.

5 Turn REC LEVEL to adjust the recording level.
The fourth dot is satisfactory for most purposes. For details, see "Recording on a tape manually" on page 52.

6 Press CD SYNC on the tape deck.
The tape deck stands by for recording and the CD is in pause for playback. The CD SYNC indicator lights up and "PLAY ▷ II (REC)" (for front side) appears.

7 Press II on the tape deck.
Recording starts.

To stop recording

Press ■ on the tape deck or the CD player.

Tips

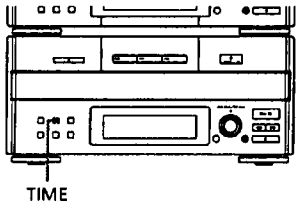
- Pressing SYSTEM POWER on the DHC-MD77/EX77MD automatically turns on the TC-TX77 deck if you connect them to each other using the audio bus cable.
- If you want to record from the reverse side, press ◁ in step 6 so that "◁ PLAY ▮▮ (REC)" (for reverse side) appears.
- When you record on both sides, be sure to start from the front side. If you start from the reverse side, recording stops at the end of the reverse side even though you select ⇄.
- When you want to reduce the hiss noise in low-level high-frequency signals, press DOLBY NR repeatedly to select B or C before step 5. You cannot switch DOLBY NR during recording.
- If the tape reaches the end of its front side while dual-sided recording, the fadeout feature works so that a track is not abruptly cut off at the end of the tape (Fade Synchro). The track will be recorded again from the beginning on the reverse side. The Fade Synchro feature works during one-side recording, too.
- You cannot perform CD Synchro Recording by pressing the CD SYNC buttons on both the tape deck and the MD deck at the same time. Use the CD Synchro Recording feature for a tape and record on an MD manually. This method is recommended since on the MD deck, you can erase the overlapping track recorded using the Fade Synchro feature just by specifying its track number (Erase Function).

Note

You cannot listen to other sources while recording.

Using the CD display

You can check the remaining time of the current track or that of the CD.



Press TIME repeatedly during play.

Each time you press the button, the display changes as follows:

Playing time on the current track
↓
Remaining time on the current track
↓
Remaining time on the current CD*

* The remaining time on the CD is not displayed during Program or Shuffle Play.

To check the total playing time and the number of tracks on the CD

Press TIME in normal or shuffle play stop mode.

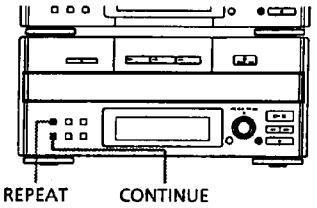
Tips

- Tracks numbered 1 to 20 appear in the Music Calendar Display. Tracks numbered 21 or over are not displayed.
- "--.--" appears when you check the remaining time of a track whose number is 21 or over.

Playing the CD tracks repeatedly

— Repeat Play

This function lets you repeat a single CD or all CDs in normal play, Shuffle Play and Program Play.



Press REPEAT during play until "REPEAT" appears.

Repeat Play starts. Do the following procedure to change the repeat mode.

To repeat	Press
All the tracks on the current CD	CONTINUE repeatedly until "1 DISC" appears.
All the tracks on all CDs	CONTINUE repeatedly until "ALL DISCS" appears.
Only one track*	REPEAT repeatedly until "REPEAT 1" appears while playing the track you want to repeat.

* You cannot repeat a single track during Shuffle Play and Program Play.

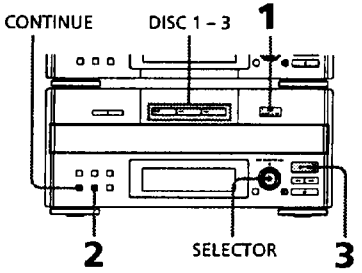
To cancel Repeat Play

Press REPEAT repeatedly until "REPEAT" or "REPEAT 1" disappears.

Playing the CD tracks in random order

— Shuffle Play

You can play all the tracks on one CD or all CDs in random order.



1 Place a CD (CDs) on the disc tray.

2 Press SHUFFLE.
"SHUFFLE" appears.
Each time you press the button, the display changes as follows:

"ALL DISCS" (All the CDs play in random order.) ↔ "1 DISC" (A single CD whose DISC 1 – 3 button lights green plays in random order.)

3 Press ▷ II (or ▷ on the remote).
The sound source automatically switches to the CD player. "🔀" appears, then all the tracks play in random order.

To cancel Shuffle Play

Press CONTINUE.

To select a desired CD

Press DISC 1 – 3 button while "1 DISC" is appearing in the display.

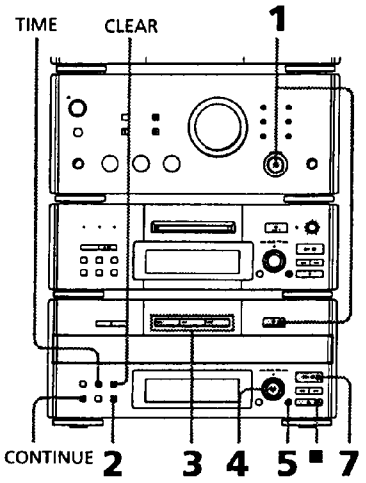
Tips

- You can start Shuffle Play during normal play by pressing SHUFFLE.
- To skip a track, turn SELECTOR clockwise (or press ▶▶I on the remote).

Programming the CD tracks

— Program Play

You can make a program of up to 32 tracks from all the CDs in the order you want them to be played. You can also record the program you made.



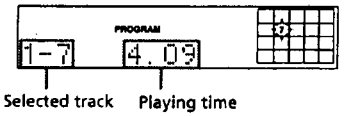
1 Turn FUNCTION until the CD indicator lights up, then place a CD (CDs) on the disc tray.

2 Press PROGRAM.
"PROGRAM" appears.

3 Press one of the DISC 1 – 3 buttons to select a CD.

Programming the CD tracks (continued)

4 Turn SELECTOR until the desired track number appears.



5 Press ENTER.
The track is programmed. The last programmed track appears, followed by the total playing time. If you have made a mistake, press CLEAR.

6 To program additional tracks, repeat steps 3 to 5.
Skip step 3 if you select a track from the same disc.

7 Press ▷ II (or ▷ on the remote).
All the tracks play in the order you selected.

To check the total number of the programmed tracks

Press TIME in stop mode.

"Step" appears, followed by the total number of the programmed tracks.

To	Do this
Cancel Program Play	Press CONTINUE.
Clear a track from the end (in stop mode)	Press CLEAR.
Add a track to the program (in stop mode)	Do steps 3 to 5 in "Programming the CD tracks."
Clear the entire program	Press ■ once in stop mode.

Tips

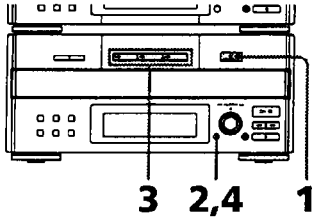
- To program the entire CD as one step of the program, skip step 4.
- When you want to record the program, see "Recording the favorite CD tracks on an MD" (see page 38) or "Recording the favorite CD tracks on a tape" (see page 54).
- The program you made remains after the Program Play has finished. To play the same program again, press ▷ II. However, when you make a recording with the Hit Parade feature, the program is erased.
- The total playing time is not displayed when you select a track whose number is 21 or over, or the total program time exceeds 100 minutes.

continued

Looping part of a CD

— Loop

With the loop function, you can repeat part of a CD during playback. This lets you create original recordings.



1 Place a CD (CDs) on the disc tray.

2 Press LOOP repeatedly in pause or stop mode to select "NORMAL 1 – 5" or "RHYTHM 1 – 5."

Each time you press the button, the display changes as follows:

NORMAL 1* ····▶ NORMAL 5
↑ ↓
RHYTHM 5 ◀···· RHYTHM 1*

* See "The difference between NORMAL and RHYTHM" for details.

3 Press one of the DISC 1 – 3 buttons, then start playing.

4 Press and hold LOOP at the point you want to start the Loop function, and release the button to resume normal play.

The difference between NORMAL and RHYTHM

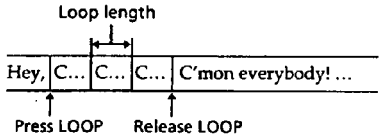
The original track can be looped in two ways, NORMAL and RHYTHM.

Original

Hey, Come on everybody! ...

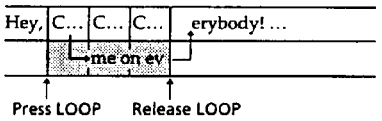
NORMAL

Normal play resumes from the point the loop started.



RHYTHM

Normal play resumes from the point the loop ends.



: Unheard portion overlapped by the loop.

You can choose the loop length from the five levels with the range from 0.25 to one second.

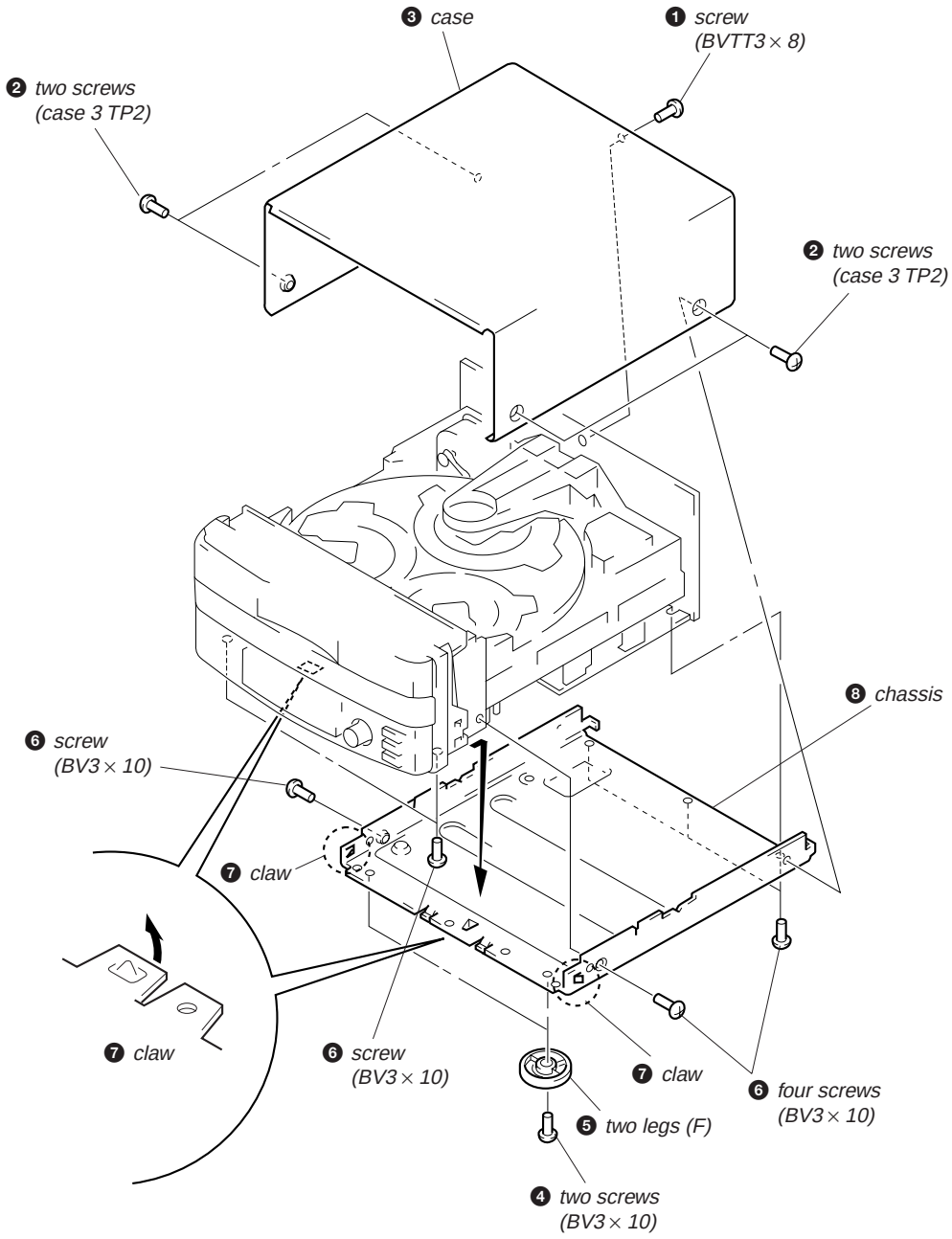
SECTION 3
DISASSEMBLY

• This set can be disassembled in the order shown below.

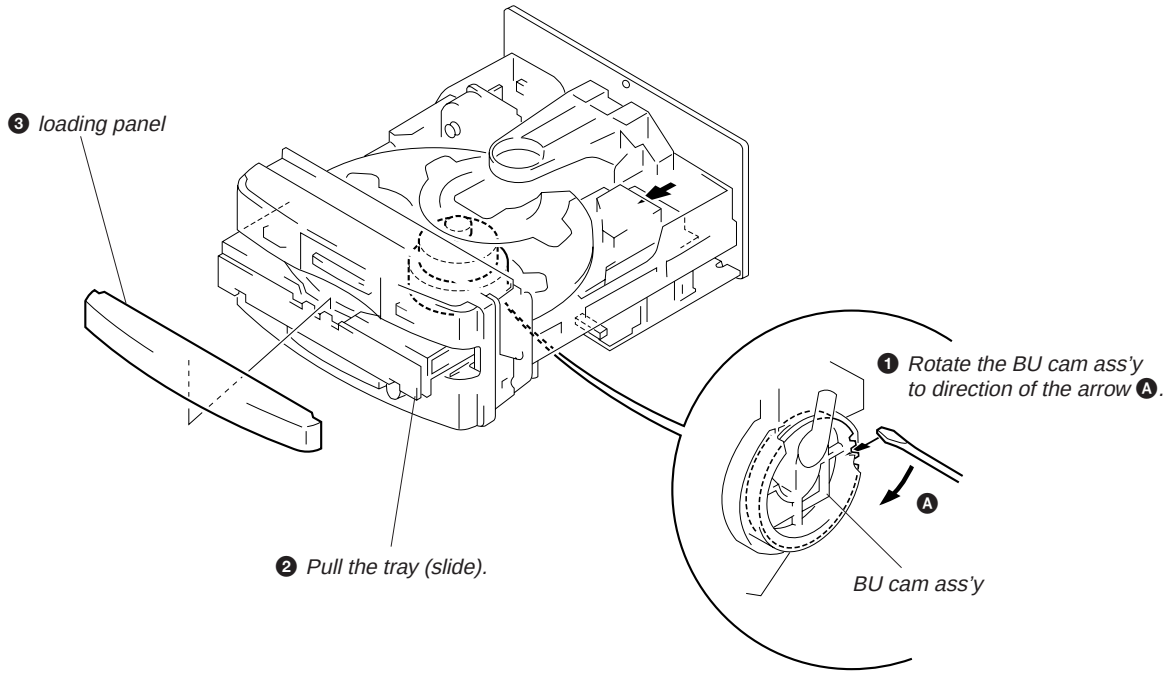
CASE, CHASSIS (Page 9)
↓
LOADING PANEL (Page 10)
↓
FRONT PANEL SECTION (Page 10)
↓
MAIN BOARD, CD MECHANISM DECK (Page 11)
→ BASE UNIT (Page 11) → BD BOARD (Page 13) → OPTICAL PICK-UP, SLED MOTOR (Page 13)
→ TRAY SECTION (Page 12)

Note: Follow the disassembly procedure in the numerical order given.

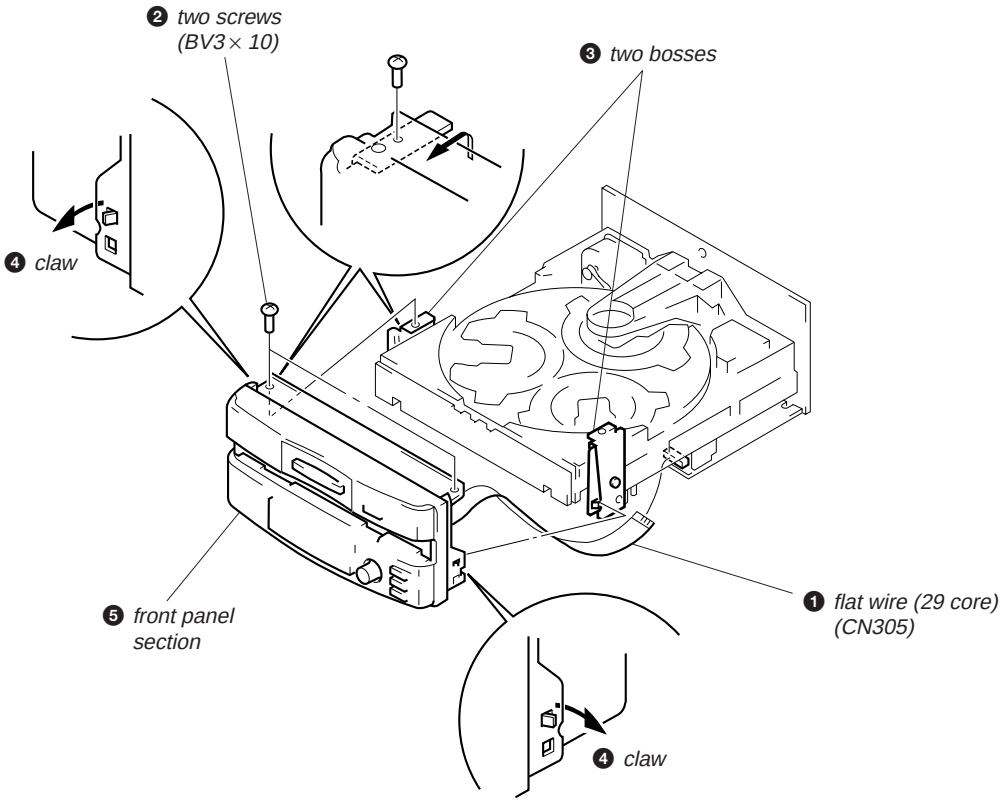
CASE, CHASSIS


❸ case
❶ screw (BVTT3 × 8)
❷ two screws (case 3 TP2)
❷ two screws (case 3 TP2)
❽ chassis
❻ screw (BV3 × 10)
❼ claw
❼ claw
❻ screw (BV3 × 10)
❼ claw
❻ four screws (BV3 × 10)
❺ two legs (F)
❹ two screws (BV3 × 10)

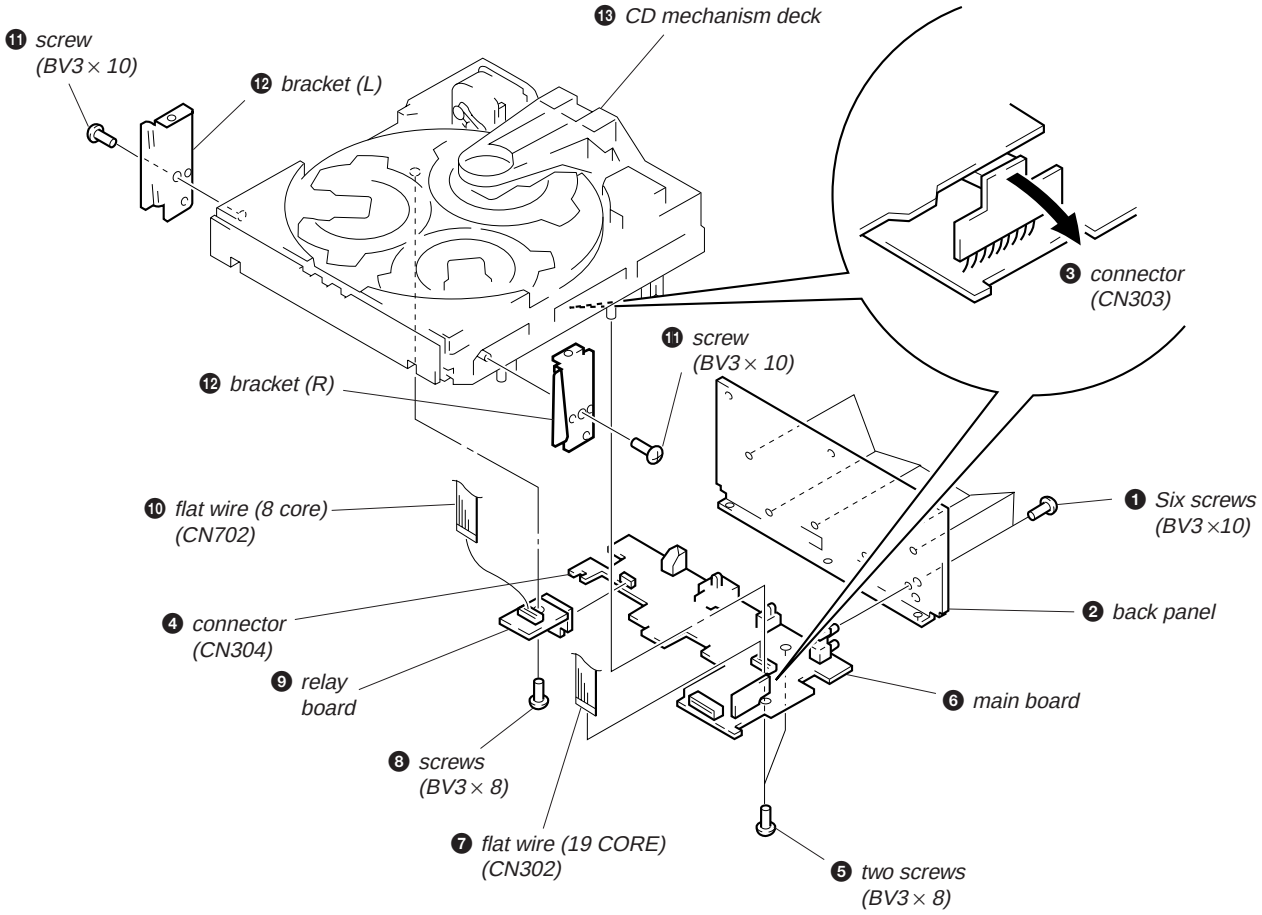
LOADING PANEL



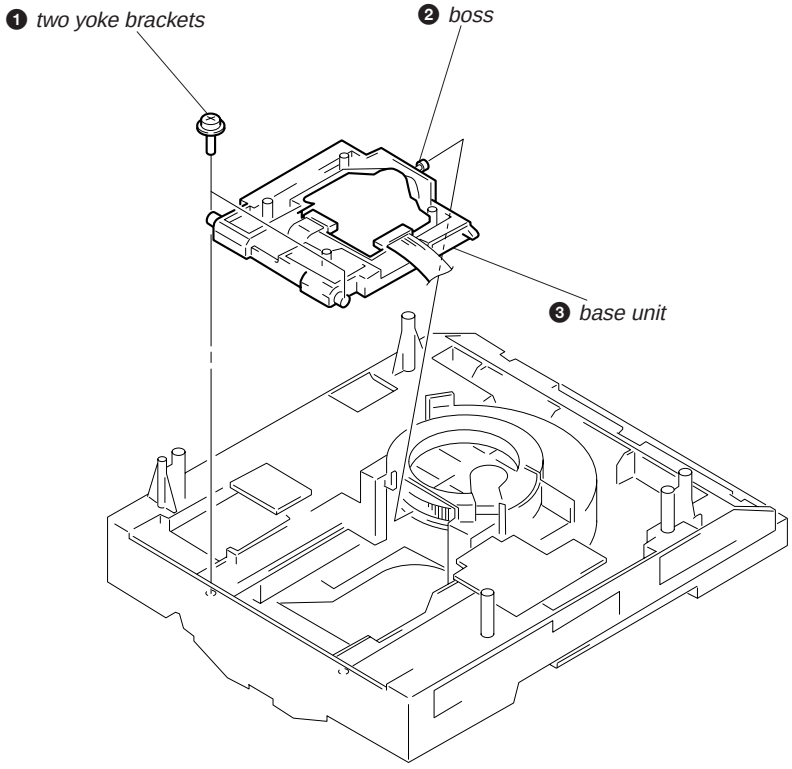
FRONT PANEL SECTION



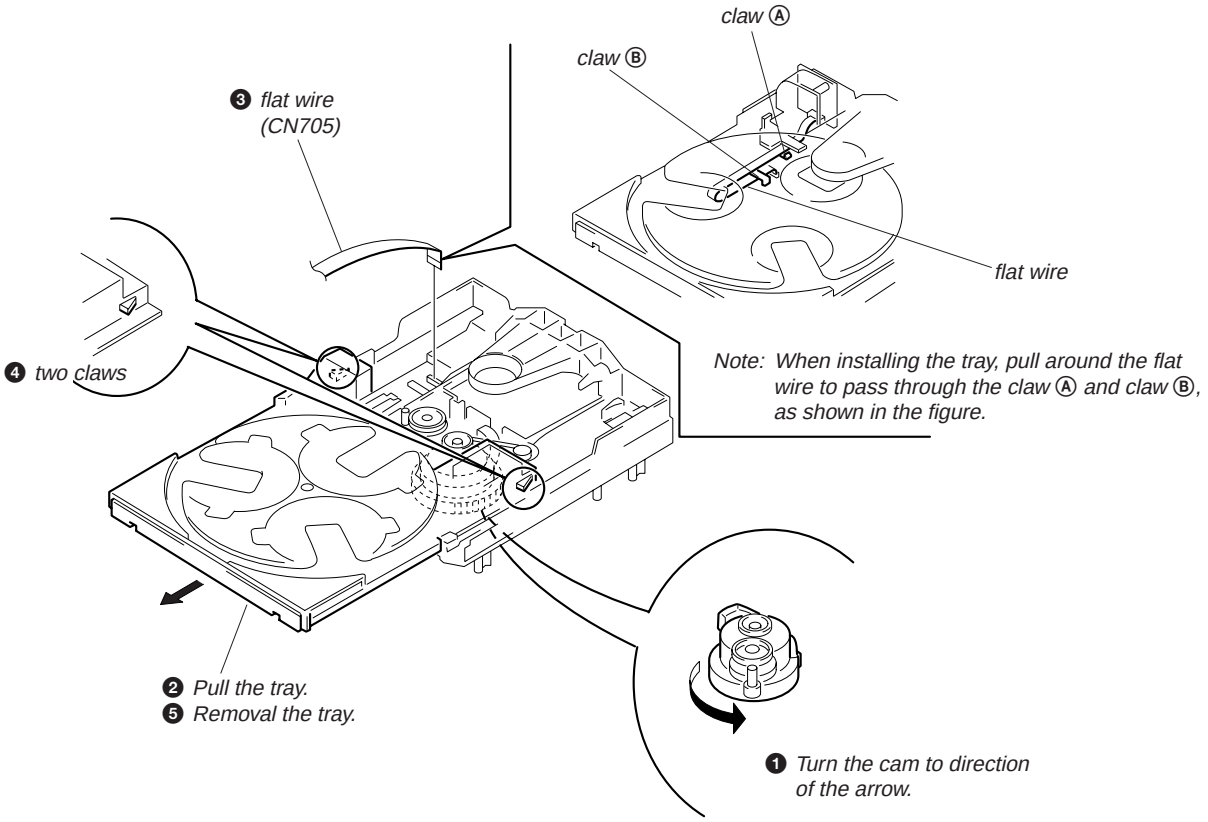
MAIN BOARD, CD MECHANISM DECK



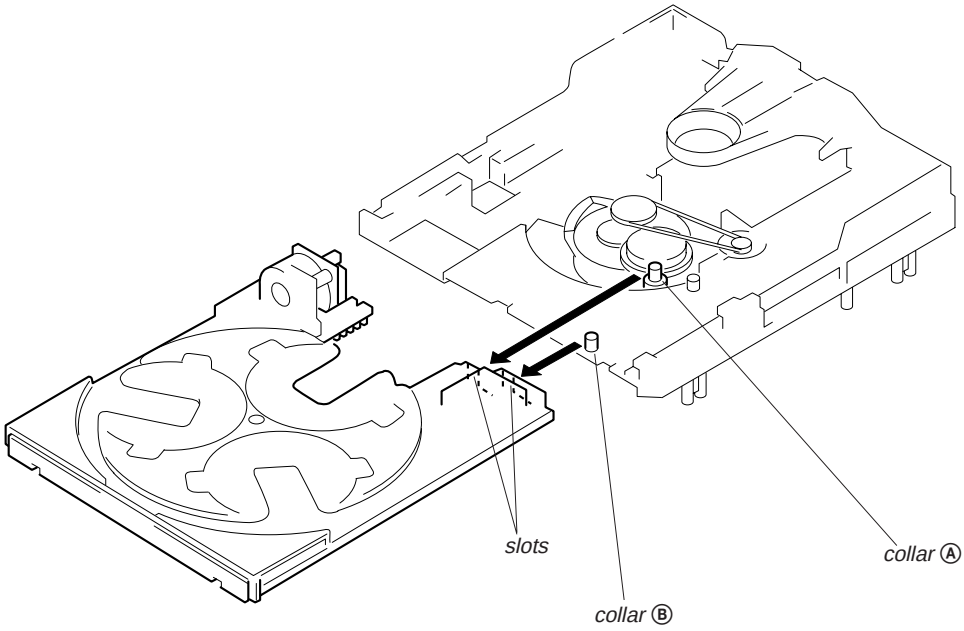
BASE UNIT



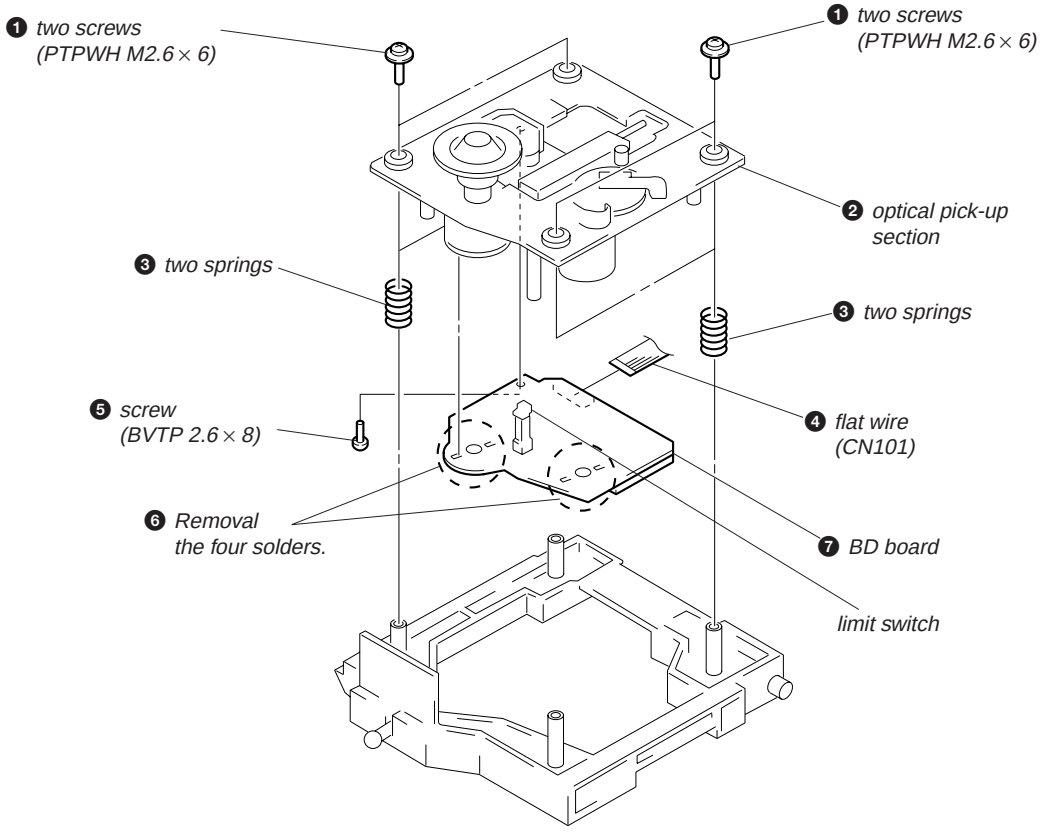
TRAY SECTION


claw Ⓐ
claw Ⓑ
❸ flat wire
(CN705)
flat wire
❹ two claws
Note: When installing the tray, pull around the flat wire to pass through the claw Ⓐ and claw Ⓑ, as shown in the figure.
❷ Pull the tray.
❺ Removal the tray.
❶ Turn the cam to direction of the arrow.

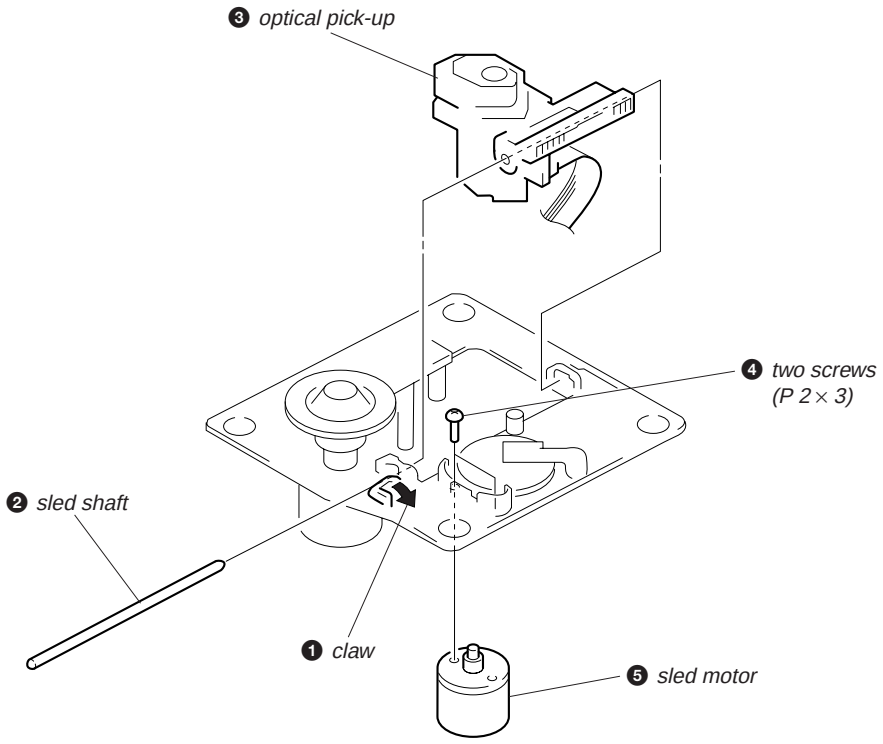
Note: When installing the tray, take care so that the collars Ⓐ and Ⓑ are properly inserted into the slots.



BD BOARD



OPTICAL PICK-UP, SLED MOTOR



SECTION 4
ELECTRICAL ADJUSTMENTS

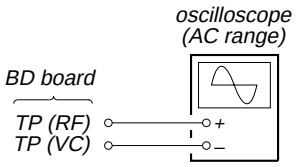
Notes:
1. CD Block basically constructed to operated without adjustment.
   Therefore, check eaech item in order given.
2. Use YEDS-18 disc (Part No.: 3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10 MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.
5. Adjust the focus bias adjustment when optical pick-up is replaced.

Focus Bias Adjustment

This adjustment is to be done when the optical pick-up is replaced.

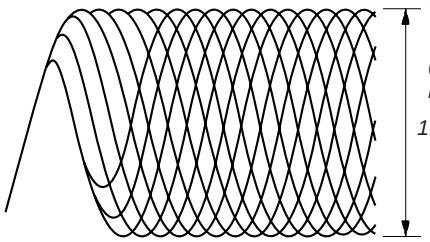
Condition: This adjustment is performed with the set placed horizontally.

Connection:



Adjustment Procedure:
1. Connect the oscilloscope to TP (RF) and TP (VC) on BD board.
2. Turned power switch on. (stop mode)
3. Put disc (YEDS-18) in and press the ▶II button.
4. Adjust RV101 so that the oscilloscope waveform is as shown in the figure below (eye pattern).
   A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.
5. After adjustment, check the RF signal level.

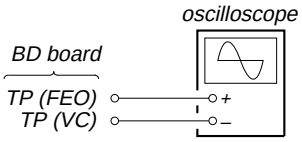
- **RF signal reference waveform (eye pattern)**



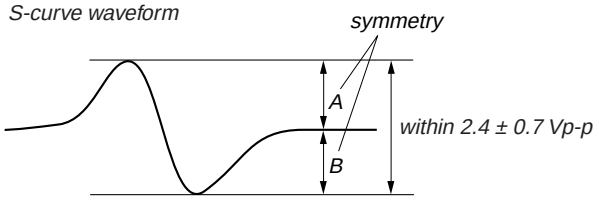
When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

S-Curve Check

Connection:



Procedure:
1. Connect the oscilloscope to TP (FEO) and TP (VC) on BD board.
2. Connect the TP (FOK) and TP (GND) with lead wire.
3. Turned power switch on.
4. Put disc (YEDS-18) in and turned power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Confirm that the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2.4 ± 0.7 Vp-p.

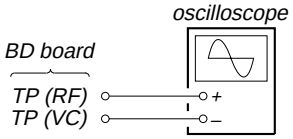


6. After check, remove the lead wire connected in step 2.

Note:
- Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

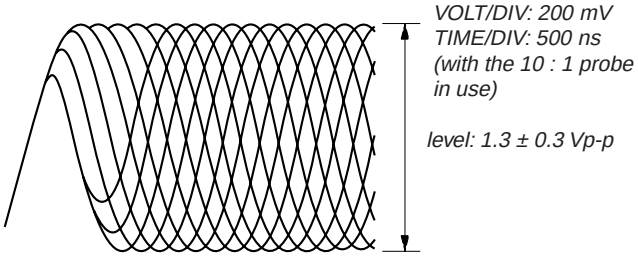
Connection:



Procedure:
1. Connect the oscilloscope to TP (RF) and TP (VC) on BD board.
2. Turned power switch on. (stop mode)
3. Put disc (YEDS-18) in and press the ▶II button.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

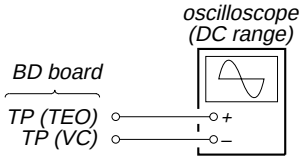
Note: Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

RF signal waveform



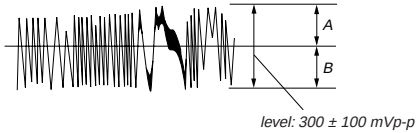
E-F Balance (Traverse) Check

Connection:



Procedure:
1. Connect the TP501 (ADJ) and Ground with lead wire. (on the display board)
2. Connect the oscilloscope to TP (TEO) and TP (VC) on BD board.
3. Turned power switch on.
4. Put disc (YEDS-18) in and press the ▶II button.
5. Press the TIME button. (Tracking servo and sled servo are turned off.)
6. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 Vdc, and check this level.

Traverse waveform



specified value: • $\frac{A-B}{2\,(A+B)} \times 100$ = *less than ± 7%*

• *A+B = 300 ± 100 mVp-p*

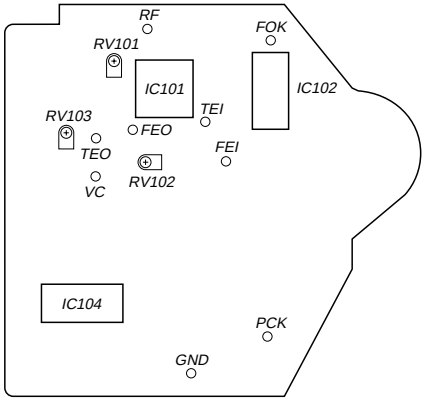
7. After check, remove the lead wire connected in step 1.

Focus/Tracking Gain Adjustment (RV102, RV103)

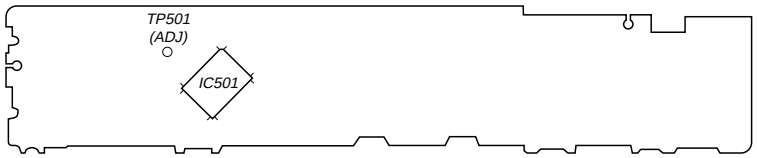
This gain has a margin, so even if it is slightly off. There is no problem.
Therefore, do not perform, this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

Adjustment Location :

[BD BOARD] – Side B –

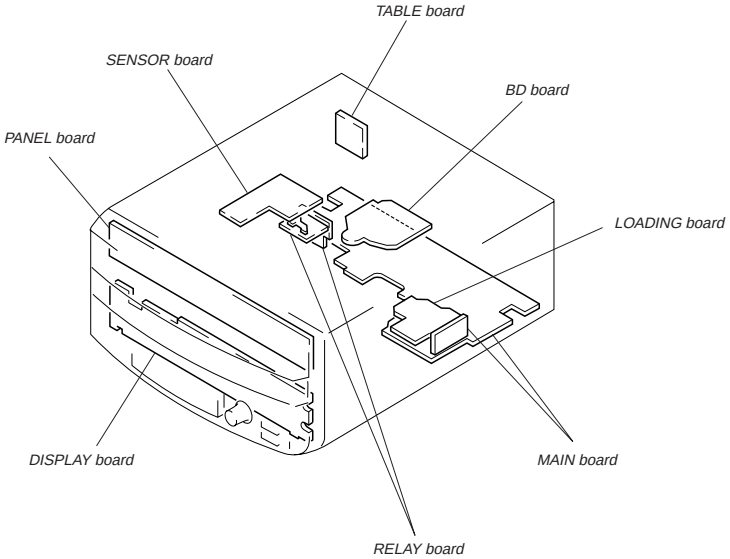


[DISPLAY BOARD] – Conductor Side –



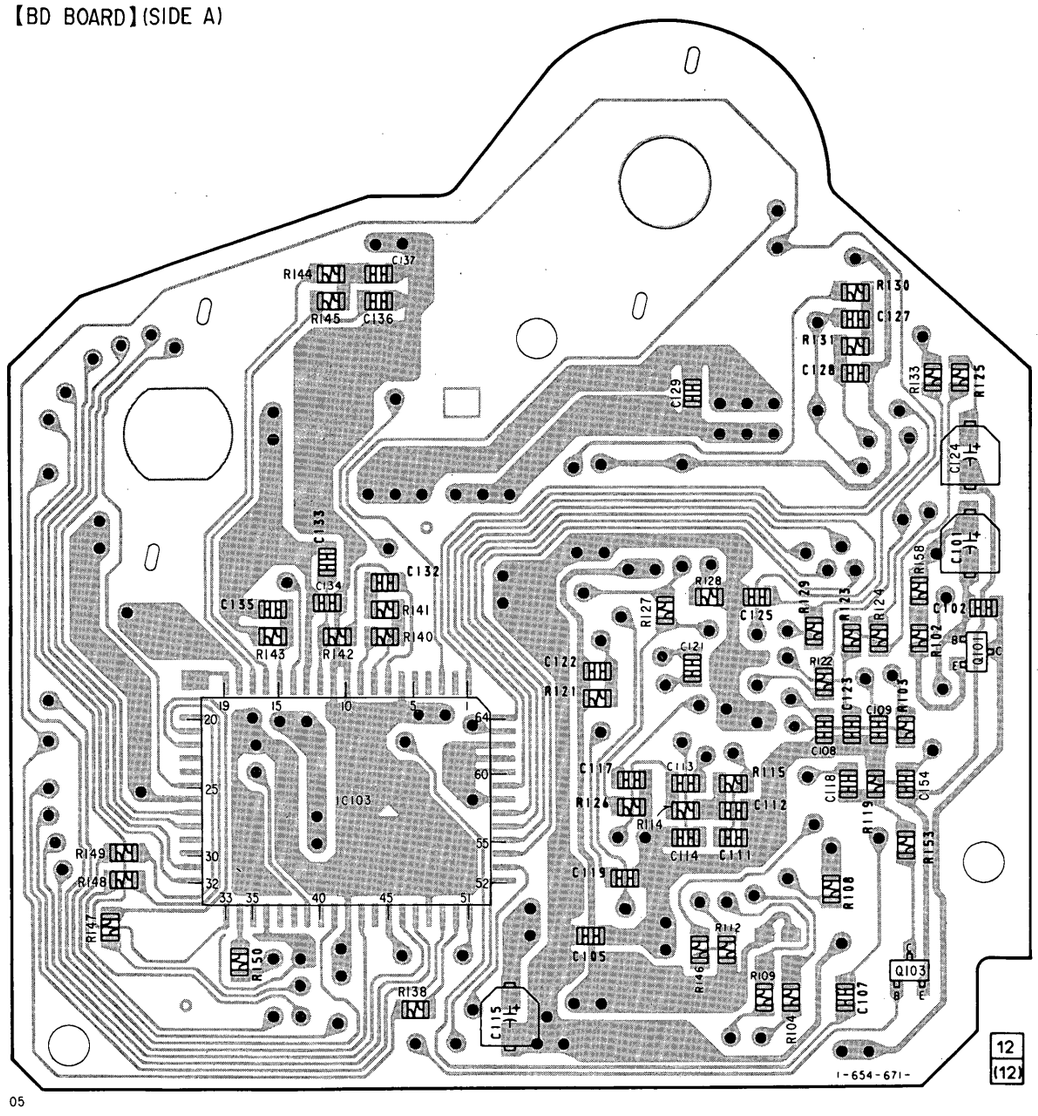
SECTION 5
DIAGRAMS

• **Circuit Boards Location**

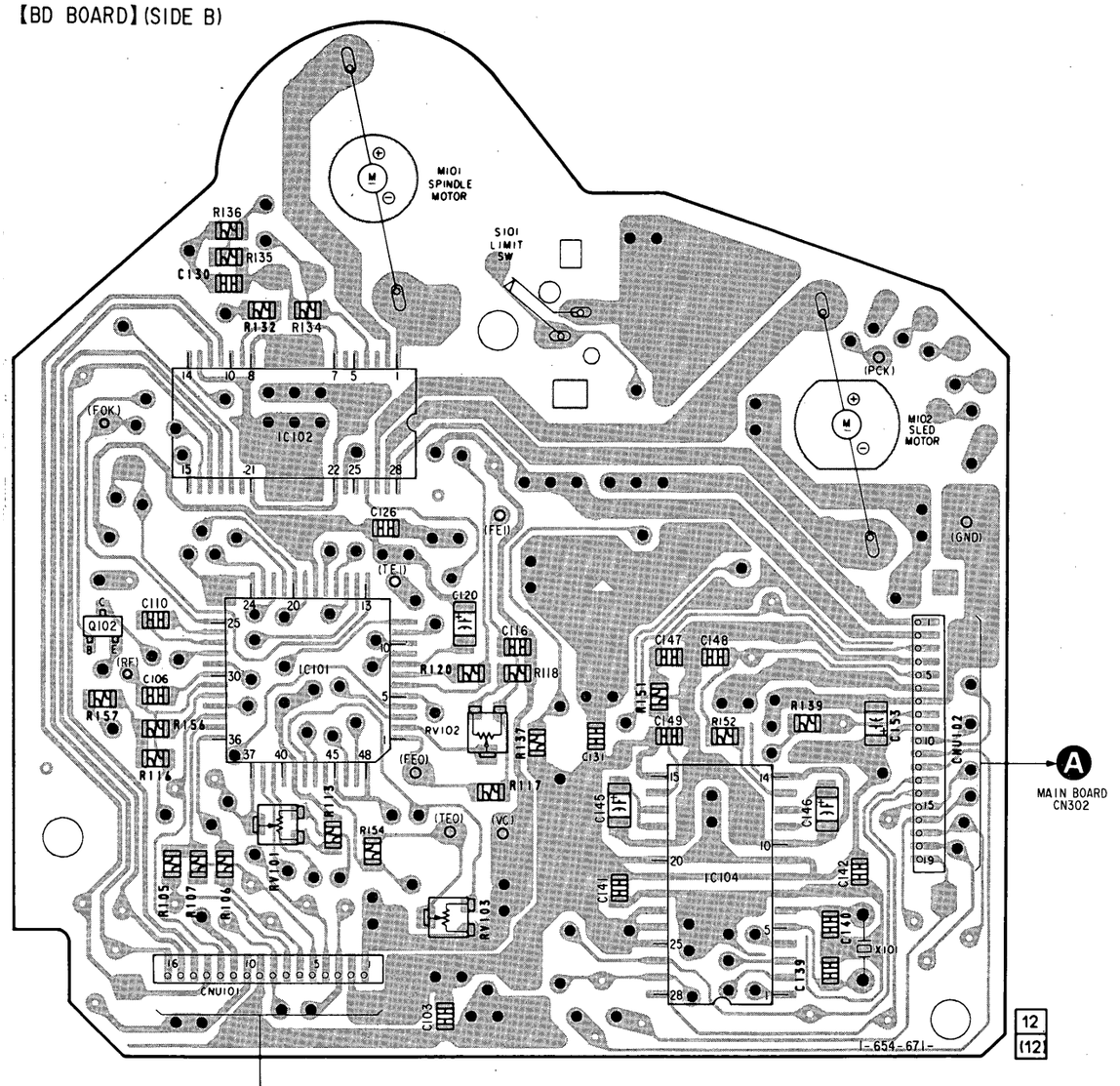


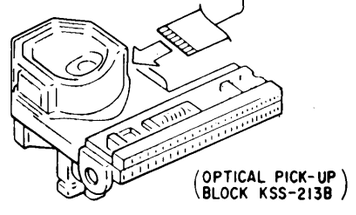
5-1. PRINTED WIRING BOARD – BD Section – • See page 16 for Circuit Boards Location.

【BD BOARD】(SIDE A)



【BD BOARD】(SIDE B)





Note on Printed Wiring Board:

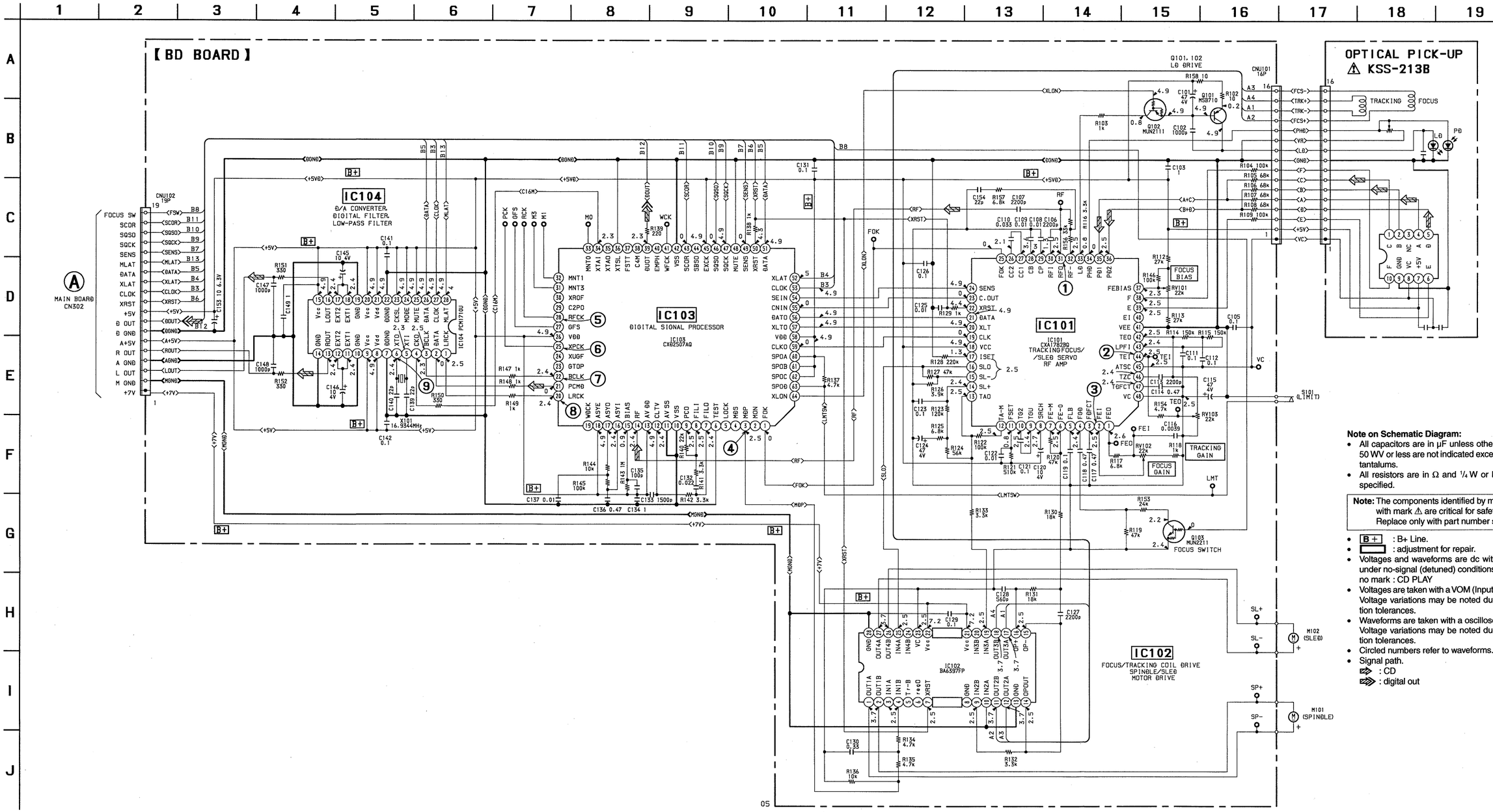
- ○——— : parts extracted from the component side.
- ● : Through hole.
- ▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

• Semiconductor Location

Ref. No.	Location
IC101	E-9
IC102	C-8
IC103	E-3
IC104	F-11
Q101	E-6
Q102	E-7
Q103	F-6



Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.

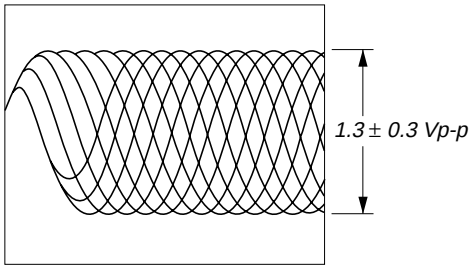
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : CD PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
  ⇛ : digital out

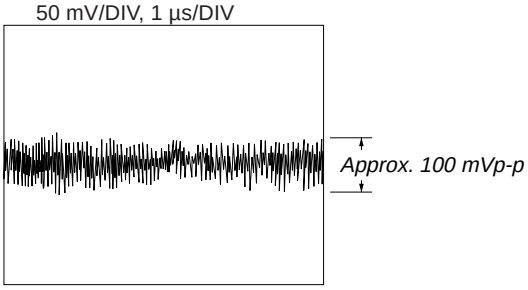
• **Waveforms**

– BD Section –

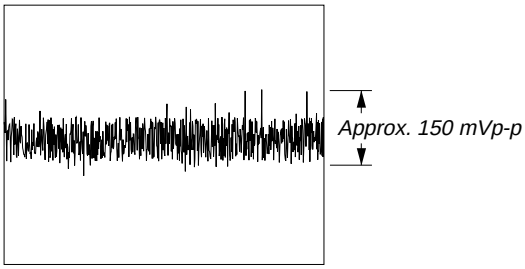
❶ IC101 ㉛ (RFO) (PLAY Mode)
500 mV/DIV, 500 ns/DIV



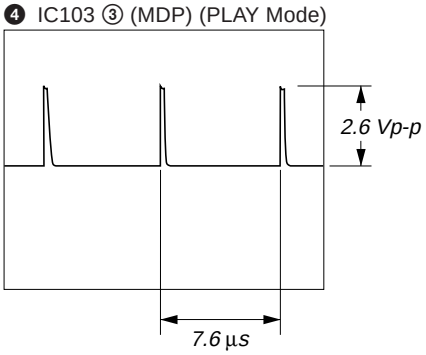
❷ IC101 ㊹ (TEI) (PLAY Mode)
50 mV/DIV, 1 µs/DIV



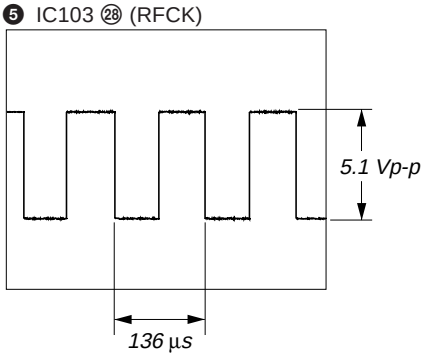
❸ IC101 ② (FEI) (PLAY Mode)
50 mV/DIV, 1 µs/DIV



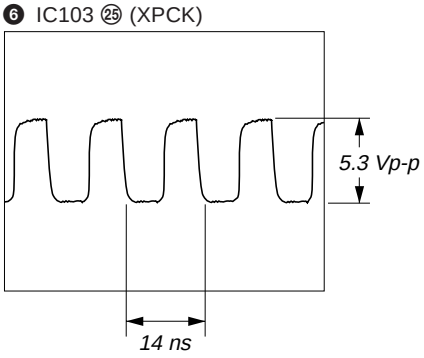
❹ IC103 ③ (MDP) (PLAY Mode)



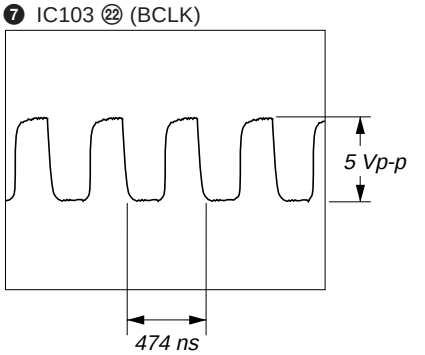
❺ IC103 ㉘ (RFCK)



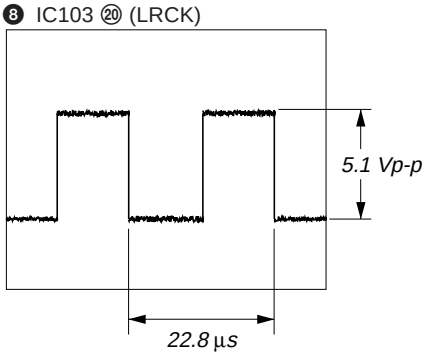
❻ IC103 ㉕ (XPCK)



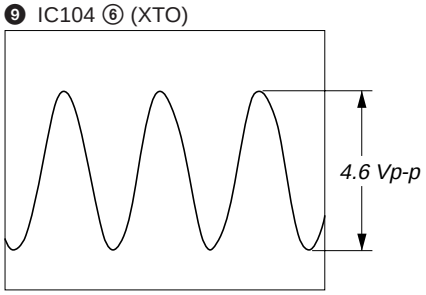
❼ IC103 ㉒ (BCLK)



❽ IC103 ⑳ (LRCK)



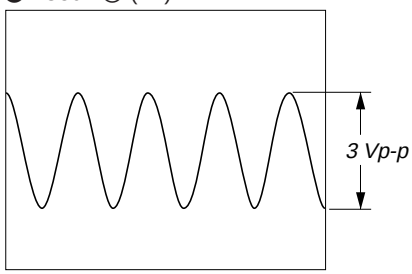
❾ IC104 ⑥ (XTO)



16.9344 MHz

– MAIN/PANEL/MOTOR Section –

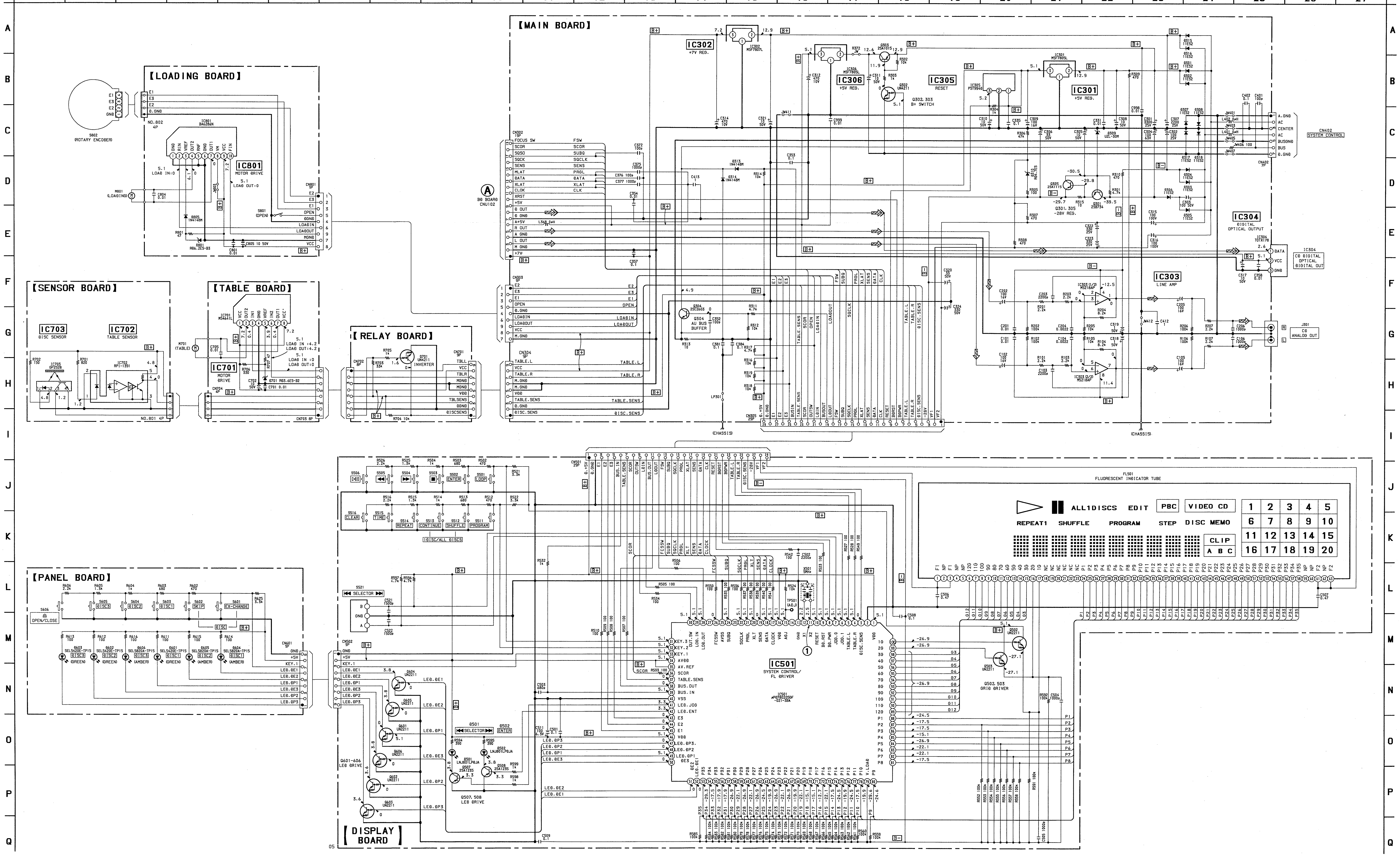
❶ IC501 ⑪ (X2)



10 MHz

5-3. SCHEMATIC DIAGRAM – MAIN/PANEL/MOTOR Section –

• See page 22 for Waveforms, see page 33 for IC Block Diagrams, and see page 34 for IC Pin Function Description.



Note on Schematic Diagram:
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- Δ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- B– : B– Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : STOP
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
  ⇛ : digital out

【PANEL BOARD】

【DISPLAY BOARD】

【TABLE BOARD】

【SENSOR BOARD】

【LOADING BOARD】

【RELAY BOARD】(1/2)

【RELAY BOARD】(2/2)

【MAIN BOARD】(1/2)

【MAIN BOARD】(2/2)

• Semiconductor Location

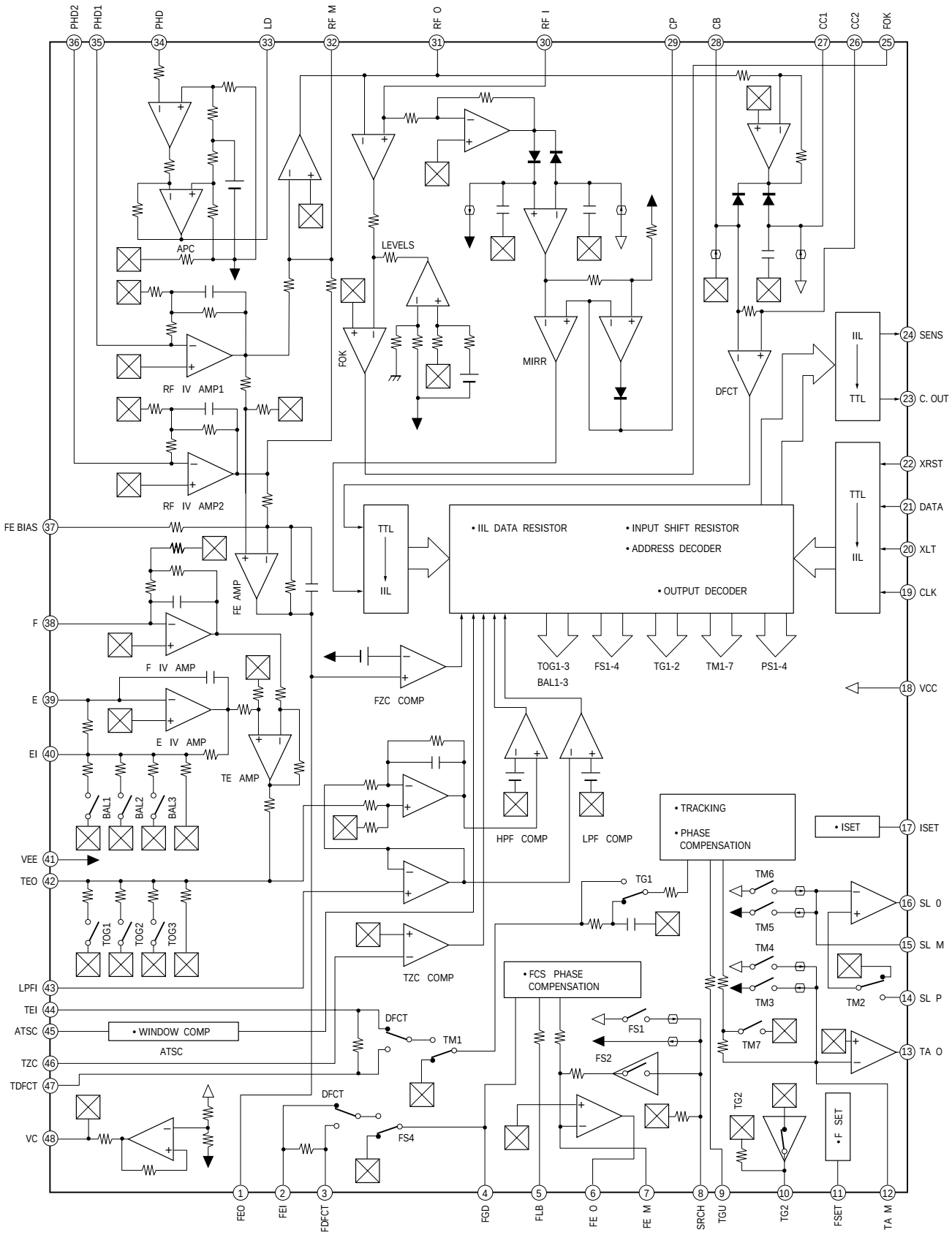
Ref. No.	Location	Ref. No.	Location
D301	J-14	IC301	H-12
D302	J-14	IC302	I-12
D303	I-14	IC303	H-20
D304	I-14	IC304	J-18
D305	I-14	IC305	E-20
D306	H-14	IC306	H-13
D307	I-16	IC501	D-4
D308	I-16	IC701	G-3
D309	H-18	IC702	D-12
D310	H-17	IC703	E-14
D313	E-20	IC801	C-16
D314	E-20		
D315	J-14	Q301	H-17
D316	J-14	Q302	H-14
D317	I-15	Q303	I-13
D318	I-15	Q304	F-20
D501	D-3	Q305	H-18
D502	E-2	Q502	C-5
D601	B-7	Q503	C-5
D602	B-6	Q507	D-3
D603	B-5	Q508	E-2
D604	A-7	Q601	D-11
D605	A-6	Q602	E-9
D606	A-5	Q603	E-9
D701	H-3	Q604	D-11
D801	C-16	Q605	D-11
D805	C-16	Q606	E-10
		Q701	I-9

Note on Printed Wiring Board:
- ○——○ : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- △ : internal component.
- ▨ : Pattern from the side which enables seeing.

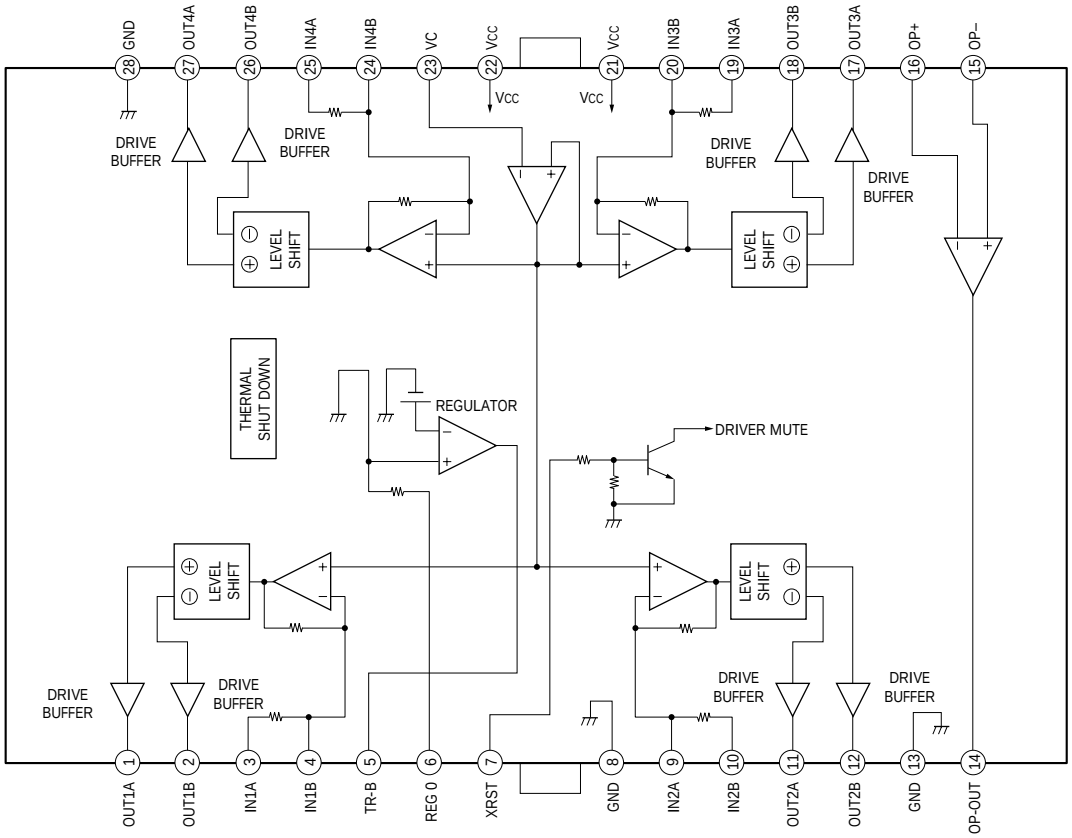
• **IC Block Diagrams**

– BD Section –

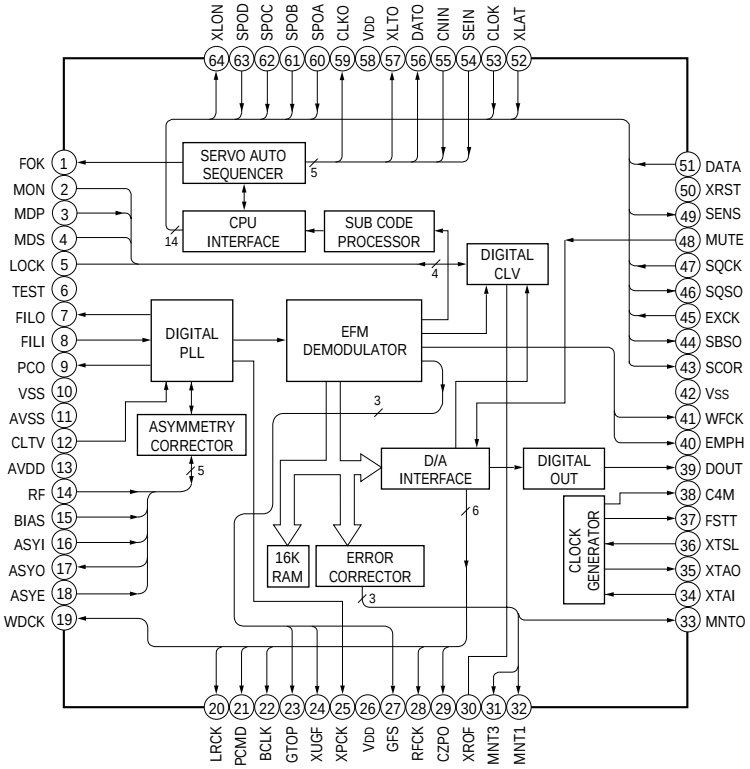
IC101 CXA1782BQ



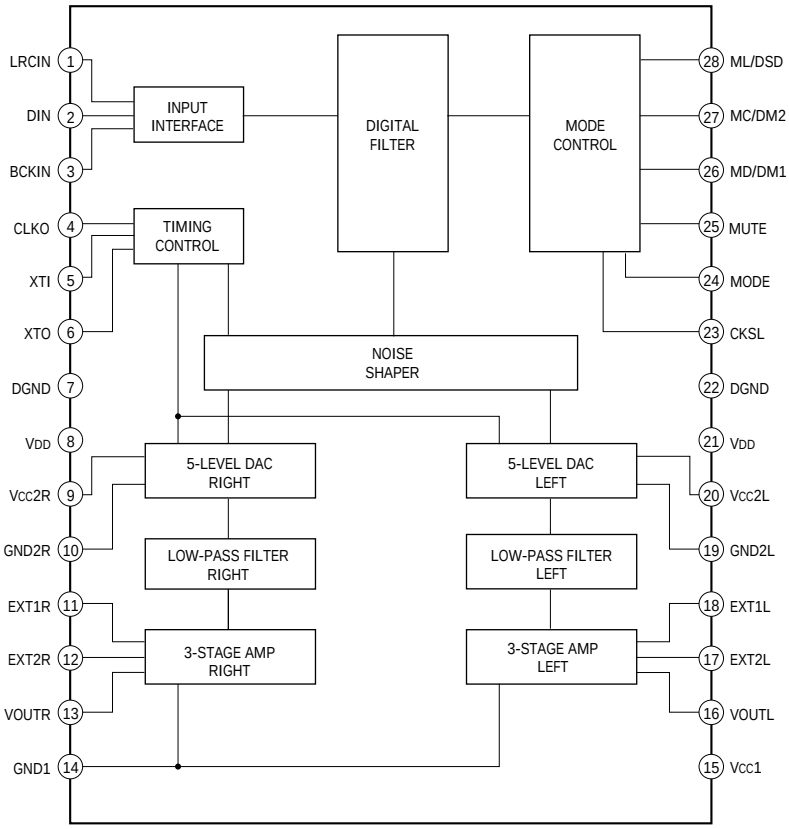
IC102 BA6397FP



IC103 CXD2507AQ

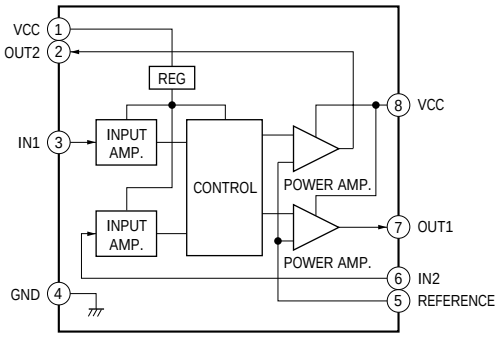


IC104 PCM1710U-B

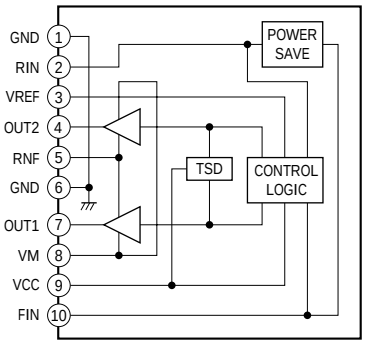


– MAIN/PANEL/MOTOR Section –

IC701 M54641L



IC801 BA6286N



5-5. IC PIN FUNCTION DESCRIPTION

• DISPLAY BOARD IC501 µPD780205GF-021-3BA (SYSTEM CONTROL, FL TUBE DISPLAY DRIVE)

Pin No.	Pin Name	I/O	Function
1	VDD	–	+5 V power supply
2	–	–	Connected to ground
3	DISC. SENS	I	Input of disc sensor signal "L" : No disc, "H" : Disc present
4	TABLE. R	O	Output of disc table clockwise rotation
5	TABLE. L	O	Output of disc table counterclockwise rotation
6	JOG. 1	I	Encoder switch input B
7	JOG. 0	I	Encoder switch input A
8	BD. PWR	O	Output of power ON/OFF to BD block "L" : OFF, "H" : ON
9	BD. RST	O	Output of Reset signal to BD block "L" : Reset
10	RESET	I	Input of system Reset signal "L" : Reset
11	X2	O	Main system clock (5MHz)
12	X1	I	
13	GND	–	Ground
14	–	–	Not used (open)
15	ADJ	I	Pin for test mode "L" : Test mode
16	VDD	–	+5V power supply
17	CLOCK	O	Output of serial clock to IC103 (DSP) and IC104 (D/A converter)
18	DATA	O	Output of serial data to IC103 (DSP) and IC104 (D/A converter)
19	SENS	I	Input of various status signals from IC103 (DSP) and IC104 (D/A converter)
20	XLT	O	Output of serial data latch pulse to IC103 (DSP) and IC104 (D/A converter)
21	PRGL	O	Output of serial data latch pulse to digital filter
22	SOCLK	O	Output of subcode Q data reading clock to IC103 (DSP)
23	–	O	Not used (open)
24	SUBQ	I	Subcode Q data serial input from IC103 (DSP)
25	AVSS	–	Ground (for A/D converter)
26	FCSSW	O	Output of focus gain selection switch "L" : Normal, "H" : Down
27	–	–	Not used (open)
28	LOD. OUT	O	Output of disc tray loading out
29	LOD. IN	O	Output of disc tray loading in
30	OUT. SW	I	Input of disc tray open complete signal "L" : Completed
31	KEY. 3	I	Key data A/D input 2
32	KEY. 2	I	Key data A/D input 1
33	KEY. 1	I	Key data A/D input 0
34	AVDD	–	+5 V analog power supply (for A/D converter)
35	AV. REF	I	Input of reference voltage (+5 V) (for A/D converter)
36	SCOR	I	Input of subcode sync S0, S1 detection
37	TABLE. SENS	I	Input of table address detection sensor
38	BUS. OUT	O	Output of audio bus signal
39	BUS. IN	I	Input of audio bus signal
40	VSS	–	Ground

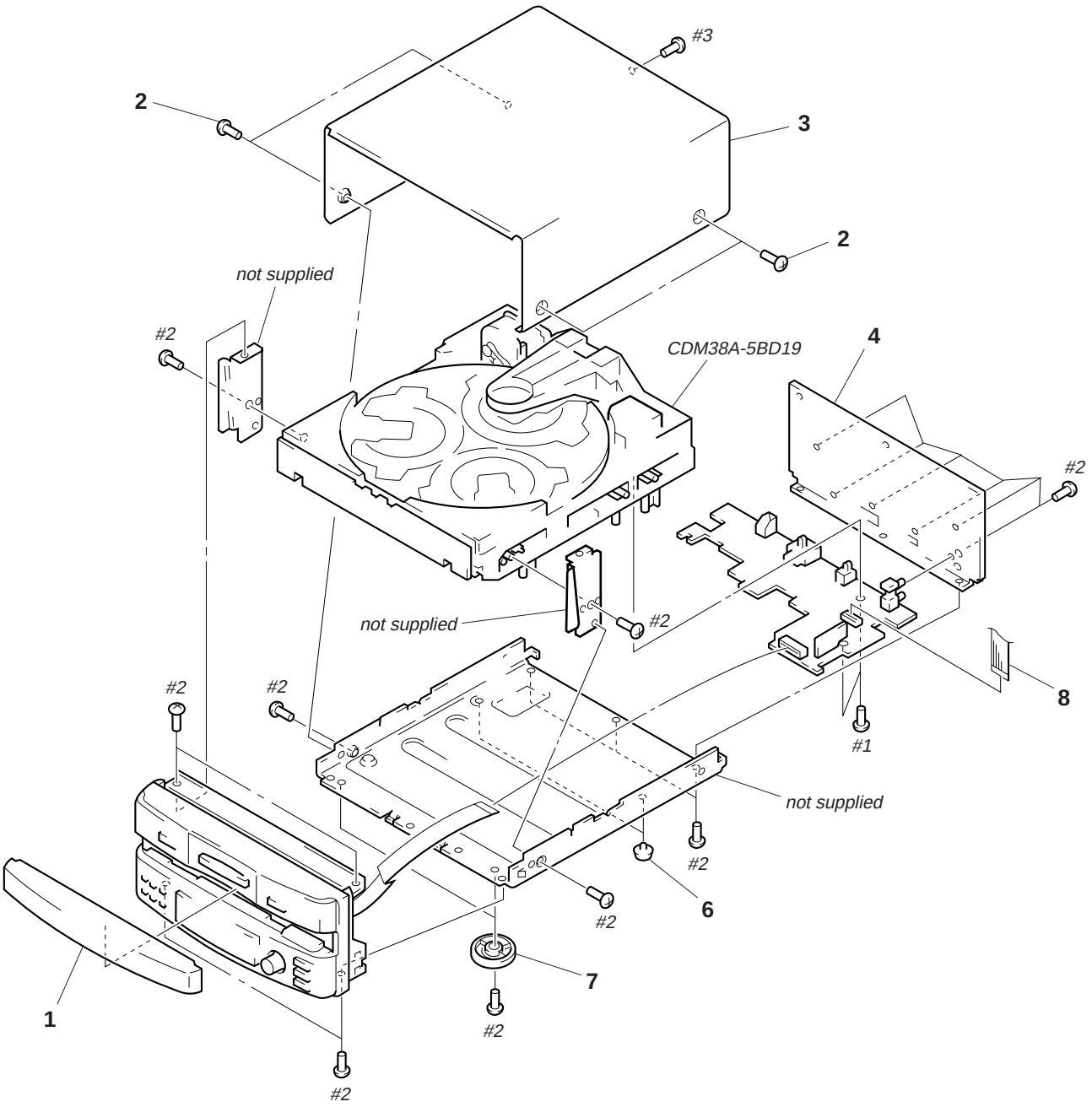
Pin No.	Pin Name	I/O	Function
41	LED. JOG	O	Output of JOG LED drive
42	LED. ENT	O	Output of ENTER LED drive
43	E3	I	Disc tray address detection encoder input 2
44	E2	I	Disc tray address detection encoder input 1
45	E1	I	Disc tray address detection encoder input 0
46	VDD	–	+5 V power supply
47	LED. DP3	O	Output of DISC 3 pointer LED (green) drive
48	LED. DP2	O	Output of DISC 2 pointer LED (green) drive
49	LED. DP1	O	Output of DISC 1 pointer LED (green) drive
50	DE3	O	Output of DISC 3 yes/no LED (amber) drive
51	DE2	O	Output of DISC 2 yes/no LED (amber) drive
52	DE1	O	Output of DISC 1 yes/no LED (amber) drive
53–78	P35–P10	O	Output of FL display tube segments
79	V. LOAD	–	–30 V power supply for FL display tube
80–88	P9–P1	O	Output of FL display tube segments
89–100	12G–1G	O	Output of FL display tube grids

SECTION 6
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list are given in the last of the electrical parts list.

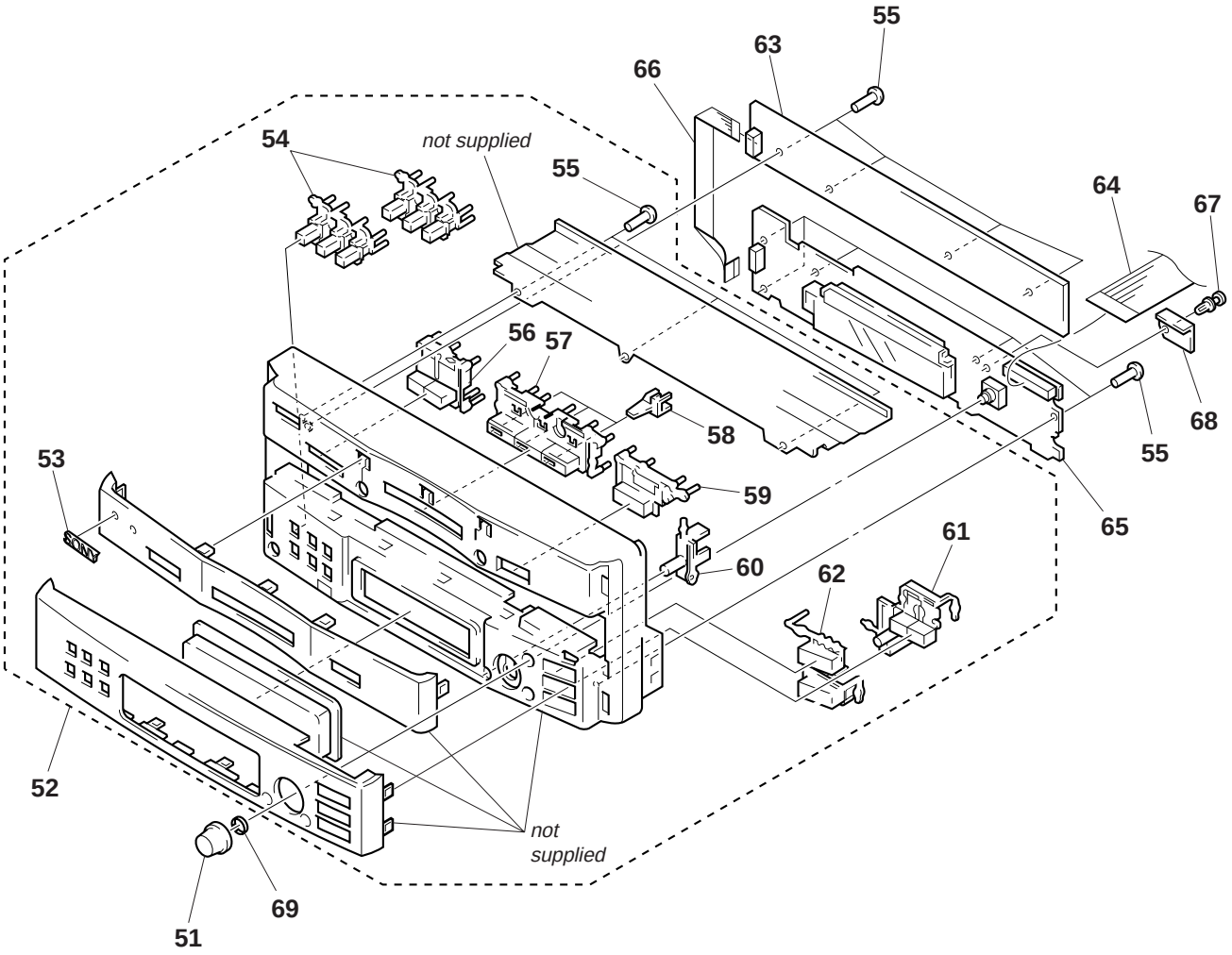
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) CHASSIS SECTION



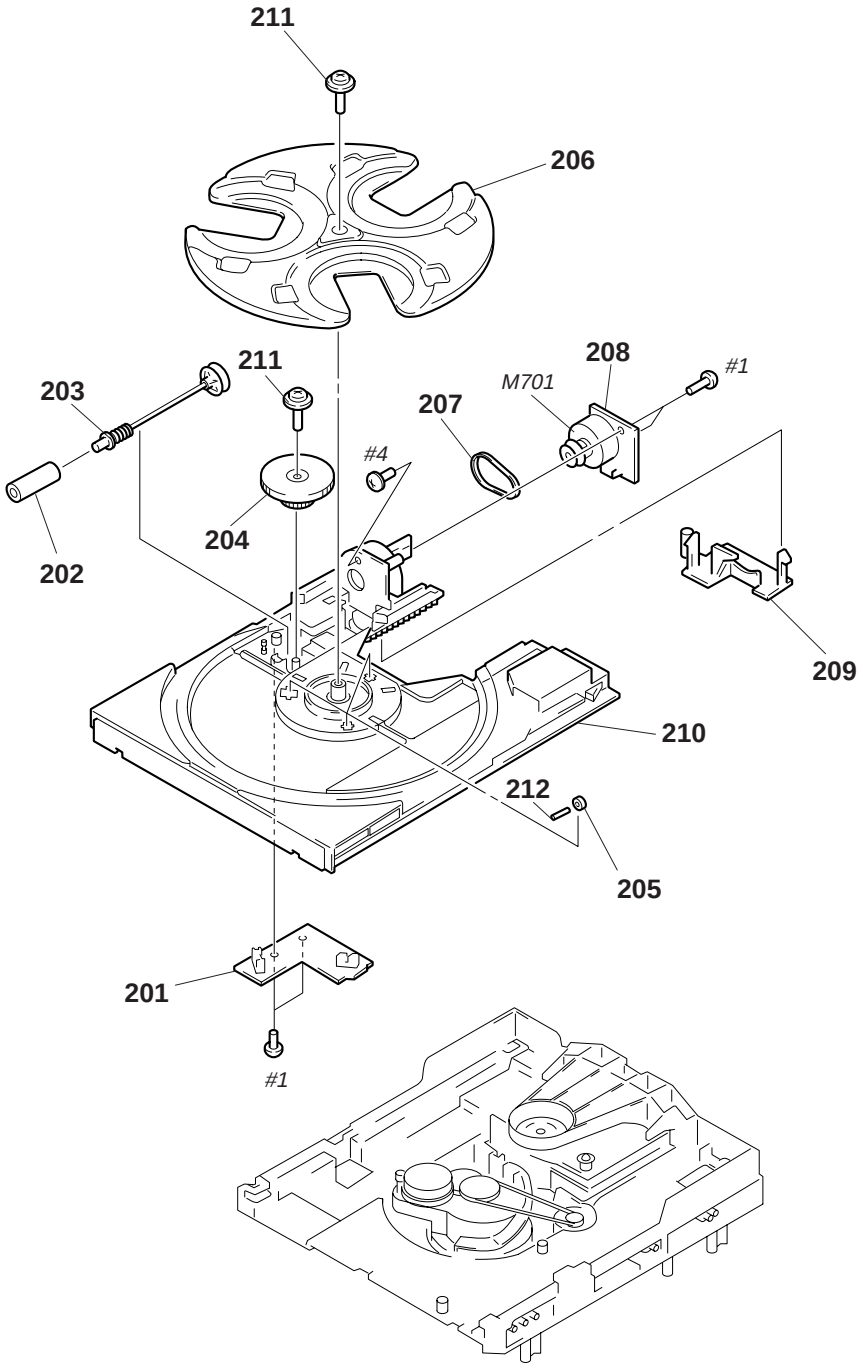
Ref. No.	Part No.	Description	Remark
1	4-985-912-01	PANEL, LOADING	
2	3-363-099-01	SCREW (CASE 3 TP2)	
3	4-977-698-11	CASE	
* 4	4-977-697-41	PANEL, BACK	
* 5	A-4699-658-A	MAIN BOARD, COMPLETE	
6	4-965-822-01	FOOT	
7	4-977-699-11	LEG (F)	
8	1-777-862-11	WIRE (FLAT TYPE) (19 CORE)	

(2) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	4-985-925-01	KNOB (JOG)	
52	X-4947-654-1	PANEL ASSY, FRONT	
53	4-962-708-01	EMBLEM (4-A), SONY	
54	4-985-890-01	BUTTON (MODE)	
55	4-951-620-01	SCREW (2.6X8), +BVTP	
56	4-985-894-01	BUTTON (EDIT) (EX-CHANGE, SKIP)	
57	4-985-909-01	BUTTON (CD3) (DISC1, DISC2, DISC3)	
58	4-985-913-01	INDICATOR (CD)	
59	4-985-910-01	BUTTON (O/C) (⏏, OPEN/CLOSE)	
60	4-985-911-01	BUTTON (EX)	
61	X-4947-763-1	BUTTON (F/R) ASSY (◀◀, ▶▶)	
62	4-985-892-01	BUTTON (PLAY) (▷II, ■)	
* 63	A-4699-278-A	PANEL BOARD, COMPLETE	
64	1-777-861-11	WIRE (FLAT TYPE) (29 CORE)	
* 65	A-4699-659-A	DISPLAY BOARD, COMPLETE	
66	1-777-860-11	WIRE (FLAT TYPE) (9 CORE)	
67	4-812-134-11	RIVET (DIA. 3.5), NYLON	
68	4-987-952-01	INSULATOR	
69	4-988-161-01	SPRING, RING	

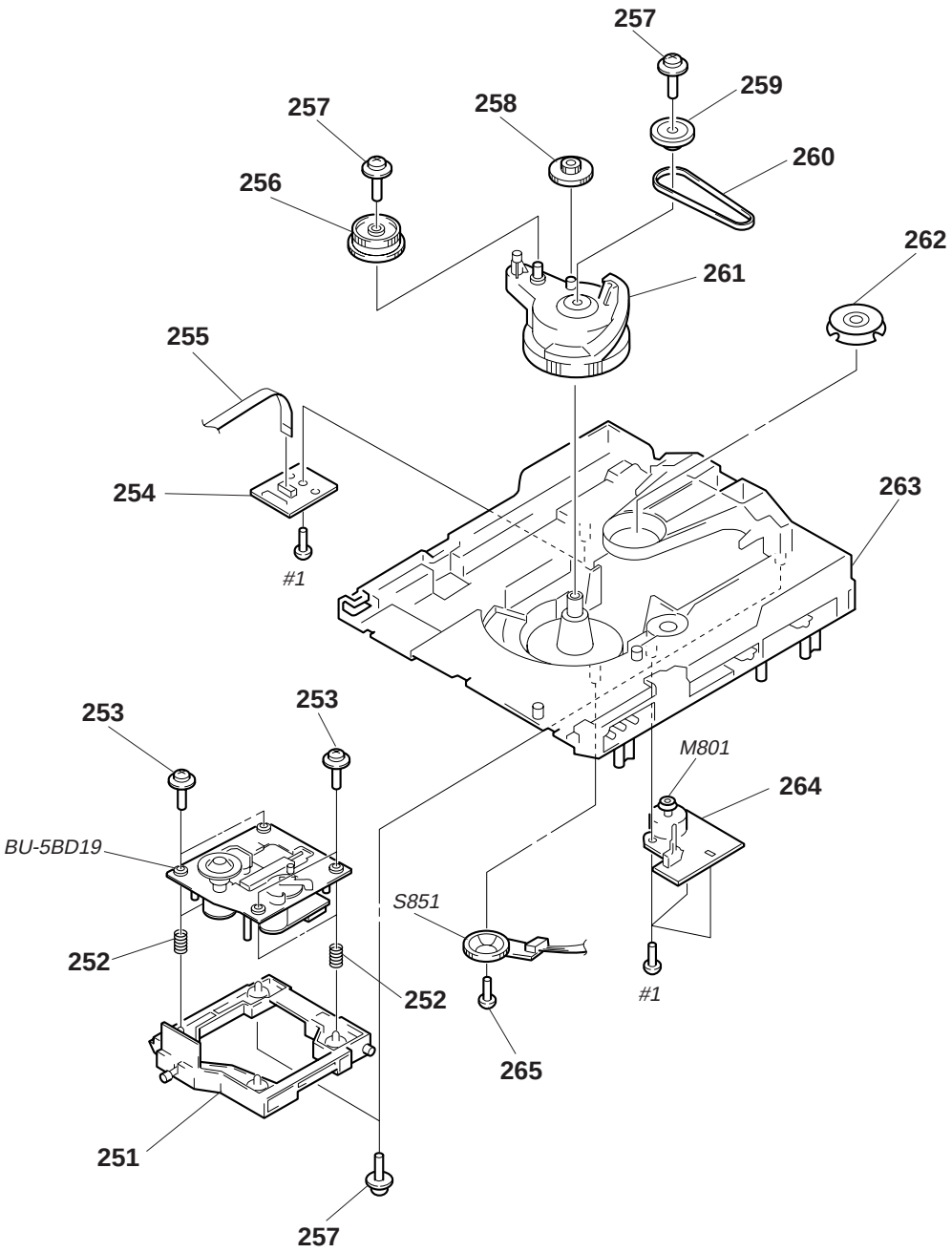
(3) CD MECHANISM DECK SECTION-1 (DM38A-5BD19)



Ref. No.	Part No.	Description	Remark
* 201	1-663-322-11	SENSOR BOARD	
202	4-981-187-01	COLLAR (WORM)	
203	X-4946-295-2	SHAFT ASSY, WORM	
204	4-977-956-01	WHEEL, WORM	
205	4-988-162-11	ROLLER	
206	4-977-945-43	TRAY (TURN)	
207	4-977-943-01	BELT (TURN) (1.2)	

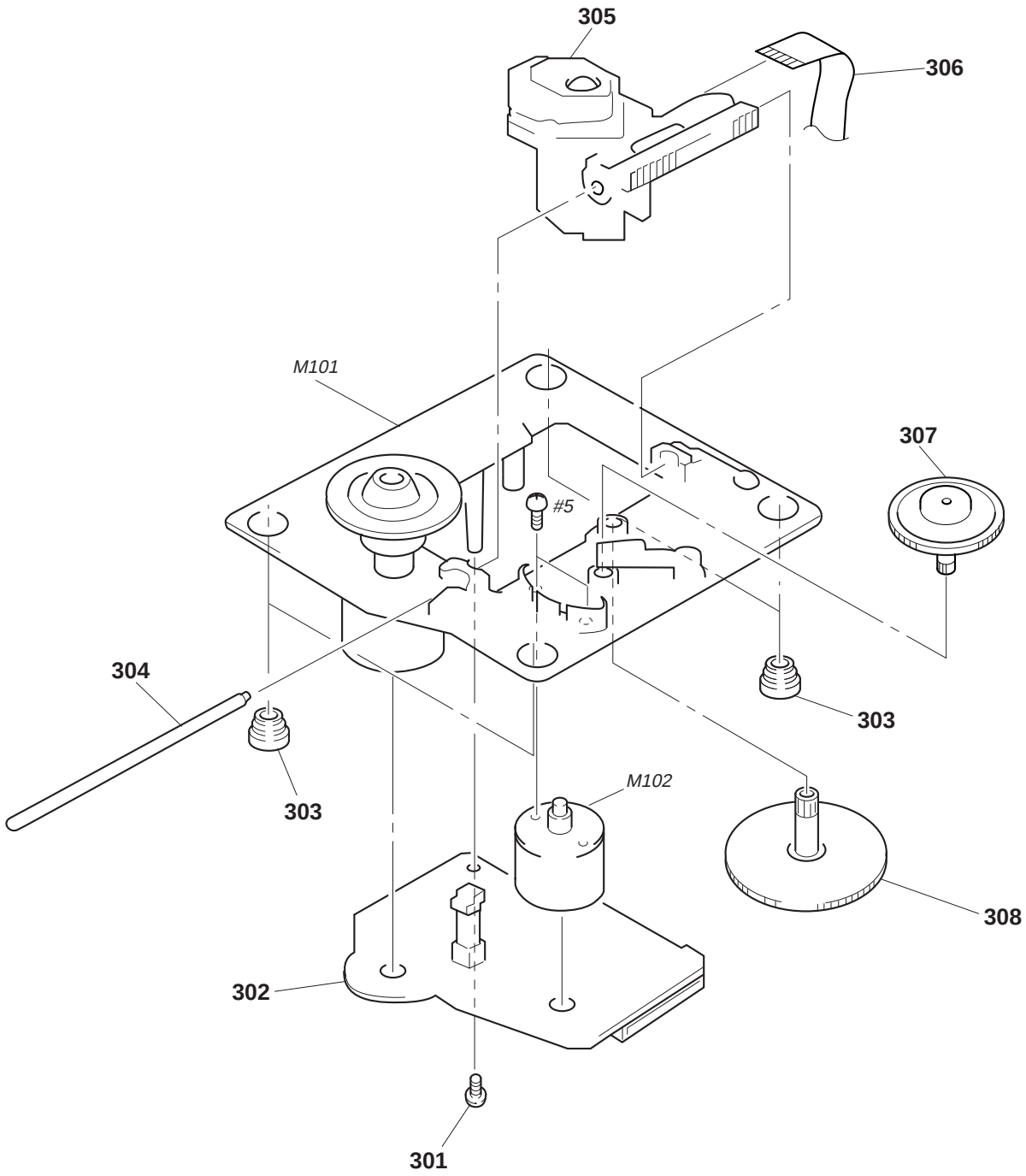
Ref. No.	Part No.	Description	Remark
* 208	1-663-323-11	TABLE BOARD	
209	4-977-941-01	BEARING (WORM)	
210	4-977-944-01	TRAY (SLIDE)	
211	4-917-583-21	BRACKET, YOKE	
212	4-934-376-01	SHAFT (ROLLER)	
M701	A-4660-586-A	MOTOR ASSY (TURN)	

(4) CD MECHANISM DECK SECTION-2 (CDM38A-5BD19)



Ref. No.	Part No.	Description	Remark
251	X-4946-296-1	HOLDER (BU) ASSY	
252	4-982-447-01	SPRING (BU), COMPRESSION	
253	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING	
* 254	1-663-324-11	RELAY BOARD	
255	1-776-042-11	WIRE (FLAT TYPE) (8 CORE)	
256	4-977-955-01	GEAR (SL-B)	
257	4-917-583-21	BRACKET, YOKE	
258	4-977-953-01	GEAR (SL-A)	
259	4-977-954-01	PULLEY (SL)	
260	4-977-942-01	BELT (SL) (1.4)	
261	X-4946-491-1	CAM ASSY, BU	
* 262	1-452-879-11	MAGNET	
263	X-4947-846-4	CHASSIS (CDM) ASSY (NEW)	
* 264	1-663-321-11	LOADING BOARD	
265	4-951-620-41	SCREW (2.6), +BVTP	
M801	A-4660-926-A	MOTOR (CDM) ASSY (SPINDLE)	
S851	1-473-335-11	ENCODER, ROTARY	

(5) BASE UNIT SECTION (BU-5BD19)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
301	4-951-620-01	SCREW (2.6X8), +BVTP	
* 302	A-4673-402-A	BD BOARD, COMPLETE	
303	4-951-940-01	INSULATOR (BU)	
304	4-917-565-01	SHAFT, SLED	
⚠305	8-848-367-11	OPTICAL PICK-UP KSS-213B/K-N	
306	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
307	4-917-567-01	GEAR (M)	
308	4-917-564-01	GEAR (P), FLATNESS	
M101	X-4917-523-4	BASE (OUTSERT) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	

SECTION 7
ELECTRICAL PARTS LIST

BD

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-4673-402-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-126-607-11	ELECT CHIP	47uF	20%	4V
C102	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C103	1-164-346-11	CERAMIC CHIP	1uF		16V
C105	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C106	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C107	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C108	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C109	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C111	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C114	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C117	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C118	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C120	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C121	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-126-607-11	ELECT CHIP	47uF	20%	4V
C125	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C126	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C127	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C128	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C129	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C130	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C131	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C132	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C133	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C134	1-164-346-11	CERAMIC CHIP	1uF		16V
C135	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C136	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C137	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C142	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C145	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C146	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C147	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C148	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C149	1-164-346-11	CERAMIC CHIP	1uF		16V
C153	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C154	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
		< CONNECTOR >			
CNU101	1-770-014-11	CONNECTOR, FFC/FPC 16P			
CNU102	1-770-013-11	CONNECTOR, FFC/FPC 19P			
		< IC >			
IC101	8-752-069-56	IC CXA1782BQ			
IC102	8-759-291-06	IC BA6397FP			
IC103	8-752-372-94	IC CXD2507AQ			
IC104	8-759-185-29	IC PCM1710U-B			
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
Q102	8-729-424-08	TRANSISTOR UN2111			
Q103	8-729-421-22	TRANSISTOR UN2211			
		< RESISTOR >			
R102	1-216-001-00	METAL CHIP	10	5%	1/10W
R103	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R104	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R105	1-216-093-00	METAL CHIP	68K	5%	1/10W
R106	1-216-093-00	METAL CHIP	68K	5%	1/10W
R107	1-216-093-00	METAL CHIP	68K	5%	1/10W
R108	1-216-093-00	METAL CHIP	68K	5%	1/10W
R109	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R112	1-216-083-00	METAL CHIP	27K	5%	1/10W
R113	1-216-083-00	METAL CHIP	27K	5%	1/10W
R114	1-216-101-00	METAL CHIP	150K	5%	1/10W
R115	1-216-101-00	METAL CHIP	150K	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R117	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R118	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R119	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R120	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R121	1-216-114-00	METAL GLAZE	510K	5%	1/10W
R122	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R123	1-216-099-00	METAL CHIP	120K	5%	1/10W

BD DISPLAY

Ref. No.	Part No.	Description			Remark
R124	1-216-091-00	METAL CHIP	56K	5%	1/10W
R125	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R126	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R127	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R128	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R129	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R130	1-216-079-00	METAL CHIP	18K	5%	1/10W
R131	1-216-079-00	METAL CHIP	18K	5%	1/10W
R132	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R133	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R134	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R135	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R136	1-216-073-00	METAL CHIP	10K	5%	1/10W
R137	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R138	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R139	1-216-033-00	METAL CHIP	220	5%	1/10W
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W
R141	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R142	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R143	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R144	1-216-073-00	METAL CHIP	10K	5%	1/10W
R145	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R146	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R147	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R148	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R149	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R150	1-216-037-00	METAL CHIP	330	5%	1/10W
R151	1-216-037-00	METAL CHIP	330	5%	1/10W
R152	1-216-037-00	METAL CHIP	330	5%	1/10W
R153	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R154	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R156	1-216-085-00	METAL CHIP	33K	5%	1/10W
R157	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R158	1-216-001-00	METAL CHIP	10	5%	1/10W
		< VARIABLE RESISTOR >			
RV101	1-223-587-11	RES, ADJ, CARBON 22K			
RV102	1-223-587-11	RES, ADJ, CARBON 22K			
RV103	1-223-587-11	RES, ADJ, CARBON 22K			
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			
		< VIBRATOR >			
X101	1-579-280-11	VIBRATOR, CRYSTAL (16.9344MHz)			
**********					
*	A-4699-659-A	DISPLAY BOARD, COMPLETE			
		**********			
*	4-955-901-01	CUSHION (FL)			
*	4-977-695-01	HOLDER (FL)			
		< CAPACITOR >			
C501	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C502	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C503	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C504	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C505	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remark
C506	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C507	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C508	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C509	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C511	1-126-177-11	ELECT	100uF	20%	10V
C521	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C522	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
		< CONNECTOR >			
* CN501	1-568-844-11	SOCKET, CONNECTOR 29P			
* CN502	1-568-828-11	SOCKET, CONNECTOR 9P			
		< LED >			
D501	8-719-057-09	LED LNJ801LPDJA (⏮ SELECTOR ⏭)			
D502	8-719-057-09	LED LNJ801LPDJA (ENTER)			
		< FLUORESCENT INDICATOR TUBE >			
FL501	1-517-462-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC501	8-759-444-42	IC uPD780205GF-021-3BA			
		< JUMPER RESISTOR >			
JW001	1-216-296-00	CONDUCTOR, CHIP (3216)			
JW002	1-216-296-00	CONDUCTOR, CHIP (3216)			
JW003	1-216-296-00	CONDUCTOR, CHIP (3216)			
JW004	1-216-296-00	CONDUCTOR, CHIP (3216)			
JW005	1-216-296-00	CONDUCTOR, CHIP (3216)			
JW006	1-216-295-00	CONDUCTOR, CHIP (2012)			
		< TRANSISTOR >			
Q502	8-729-421-22	TRANSISTOR UN2211			
Q503	8-729-421-22	TRANSISTOR UN2211			
Q507	8-729-600-22	TRANSISTOR 2SA1235-F			
Q508	8-729-600-22	TRANSISTOR 2SA1235-F			
Q601	8-729-421-22	TRANSISTOR UN2211			
Q602	8-729-421-22	TRANSISTOR UN2211			
Q603	8-729-421-22	TRANSISTOR UN2211			
Q604	8-729-421-22	TRANSISTOR UN2211			
Q605	8-729-421-22	TRANSISTOR UN2211			
Q606	8-729-421-22	TRANSISTOR UN2211			
		< RESISTOR >			
R502	1-216-190-00	METAL GLAZE	470	5%	1/8W
R503	1-216-045-00	METAL CHIP	680	5%	1/10W
R504	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R505	1-216-025-00	METAL GLAZE	100	5%	1/10W
R506	1-216-025-00	METAL GLAZE	100	5%	1/10W
R507	1-216-025-00	METAL GLAZE	100	5%	1/10W
R508	1-216-025-00	METAL GLAZE	100	5%	1/10W
R509	1-216-025-00	METAL GLAZE	100	5%	1/10W
R510	1-216-025-00	METAL GLAZE	100	5%	1/10W
R512	1-216-041-00	METAL CHIP	470	5%	1/10W
R513	1-216-045-00	METAL CHIP	680	5%	1/10W
R514	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R515	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R516	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R521	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R522	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R523	1-216-025-00	METAL GLAZE	100	5%	1/10W
R524	1-216-073-00	METAL CHIP	10K	5%	1/10W
R525	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R526	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R527	1-216-025-00	METAL GLAZE	100	5%	1/10W
R528	1-216-025-00	METAL GLAZE	100	5%	1/10W
R532	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R533	1-216-025-00	METAL GLAZE	100	5%	1/10W
R534	1-216-025-00	METAL GLAZE	100	5%	1/10W
R535	1-216-025-00	METAL GLAZE	100	5%	1/10W
R536	1-216-025-00	METAL GLAZE	100	5%	1/10W
R537	1-216-025-00	METAL GLAZE	100	5%	1/10W
R538	1-216-025-00	METAL GLAZE	100	5%	1/10W
R539	1-216-025-00	METAL GLAZE	100	5%	1/10W
R540	1-216-025-00	METAL GLAZE	100	5%	1/10W
R541	1-216-025-00	METAL GLAZE	100	5%	1/10W
R542	1-216-025-00	METAL GLAZE	100	5%	1/10W
R549	1-216-025-00	METAL GLAZE	100	5%	1/10W
R550	1-216-025-00	METAL GLAZE	100	5%	1/10W
R552	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R553	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R554	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R555	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R556	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R557	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R558	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R559	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R560	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R561	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R562	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R563	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R564	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R565	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R566	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R567	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R568	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R569	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R570	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R571	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R572	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R573	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R574	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R575	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R576	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R577	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R578	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R579	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R580	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R581	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R582	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R583	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R584	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R585	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R591	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R592	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R594	1-216-039-00	METAL CHIP	390	5%	1/10W
R595	1-216-039-00	METAL CHIP	390	5%	1/10W
R596	1-249-425-11	CARBON	4.7K	5%	1/4W
R597	1-249-425-11	CARBON	4.7K	5%	1/4W
R598	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R599	1-216-049-11	METAL GLAZE	1K	5%	1/10W

< SWITCH >

S501	1-554-303-21	SWITCH, TACTILE (LOOP)			
S502	1-762-196-21	SWITCH, TACT (ENTER)			
S503	1-762-196-21	SWITCH, TACT (■)			
S504	1-762-196-21	SWITCH, TACT (▶▶)			
S505	1-762-196-21	SWITCH, TACT (◀◀)			
S506	1-762-196-21	SWITCH, TACT (▷II)			
S511	1-762-196-21	SWITCH, TACT (PROGRAM)			
S512	1-762-196-21	SWITCH, TACT (SHUFFLE)			
S513	1-762-196-21	SWITCH, TACT (CONTINUE)			
S514	1-762-196-21	SWITCH, TACT (REPEAT)			
S515	1-762-196-21	SWITCH, TACT (TIME)			
S516	1-762-196-21	SWITCH, TACT (CLEAR)			
S521	1-467-938-11	ENCODER, ROTARY (I◀◀ SELECTOR ▶▶I)			

< VIBRATOR >

X501	1-579-233-11	VIBRATOR, CERAMIC (5MHz)			

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*	1-663-321-11	LOADING BOARD			
		**********			

< CAPACITOR >

C801	1-162-306-11	CERAMIC	0.01uF	20%	16V
C804	1-162-306-11	CERAMIC	0.01uF	20%	16V
C805	1-126-964-11	ELECT	10uF	20%	50V

< CONNECTOR >

CN801	1-695-093-11	SOCKET, CONNECTOR 9P			

< DIODE >

D801	8-719-109-93	DIODE RD6.2ESB2			
D805	8-719-987-63	DIODE 1N4148M			

< IC >

IC801	8-759-274-09	IC BA6286N			

< RESISTOR >

R801	1-249-401-11	CARBON	47	5%	1/4W

< SWITCH >

S801	1-762-527-11	SWITCH, ROTARY (OPEN)			

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*	A-4699-658-A	MAIN BOARD, COMPLETE			
		**********			
	7-685-871-01	SCREW +BVTT 3X6 (S)			

< CAPACITOR >

C101	1-162-306-11	CERAMIC	0.01uF	20%	16V
C102	1-126-933-11	ELECT	100uF	20%	16V
C103	1-106-351-00	MYLAR	2200PF	5%	200V
C104	1-106-351-00	MYLAR	2200PF	5%	200V

MAIN

Ref. No.	Part No.	Description			Remark
C105	1-126-933-11	ELECT	100uF	20%	16V
C106	1-162-294-31	CERAMIC	0.001uF	10%	50V
C201	1-162-306-11	CERAMIC	0.01uF	20%	16V
C202	1-126-933-11	ELECT	100uF	20%	16V
C203	1-106-351-00	MYLAR	2200PF	5%	200V
C204	1-106-351-00	MYLAR	2200PF	5%	200V
C205	1-126-933-11	ELECT	100uF	20%	16V
C206	1-162-294-31	CERAMIC	0.001uF	10%	50V
C301	1-126-944-11	ELECT	3300uF	20%	25V
C302	1-104-665-11	ELECT	100uF	20%	25V
C303	1-126-968-11	ELECT	100uF	20%	50V
C304	1-128-576-11	ELECT	100uF	20%	63V
C305	1-126-964-11	ELECT	10uF	20%	50V
C306	1-126-966-11	ELECT	33uF	20%	50V
C307	1-126-943-11	ELECT	2200uF	20%	25V
C308	1-126-964-11	ELECT	10uF	20%	50V
C309	1-126-933-11	ELECT	100uF	20%	16V
C310	1-126-964-11	ELECT	10uF	20%	50V
C311	1-126-964-11	ELECT	10uF	20%	50V
C312	1-126-925-11	ELECT	470uF	20%	10V
C314	1-126-925-11	ELECT	470uF	20%	10V
C315	1-128-563-11	ELECT	100uF	20%	100V
C316	1-128-563-11	ELECT	100uF	20%	100V
C317	1-126-964-11	ELECT	10uF	20%	50V
C318	1-126-960-11	ELECT	1uF	20%	50V
C319	1-126-960-11	ELECT	1uF	20%	50V
C320	1-126-966-11	ELECT	33uF	20%	50V
C321	1-126-964-11	ELECT	10uF	20%	50V
C322	1-126-025-11	ELECT	330uF	20%	25V
C323	1-126-025-11	ELECT	330uF	20%	25V
C324	1-126-970-11	ELECT	330uF	20%	50V
C331	1-162-306-11	CERAMIC	0.01uF	20%	16V
C335	1-164-159-11	CERAMIC	0.1uF		50V
C352	1-162-282-31	CERAMIC	100PF	10%	50V
C353	1-164-159-11	CERAMIC	0.1uF		50V
C354	1-162-306-11	CERAMIC	0.01uF	20%	16V
C357	1-164-159-11	CERAMIC	0.1uF		50V
C358	1-162-306-11	CERAMIC	0.01uF	20%	16V
C372	1-162-282-31	CERAMIC	100PF	10%	50V
C375	1-162-294-31	CERAMIC	0.001uF	10%	50V
C376	1-162-282-31	CERAMIC	100PF	10%	50V
C377	1-162-294-31	CERAMIC	0.001uF	10%	50V
C381	1-164-159-11	CERAMIC	0.1uF		50V
C384	1-164-159-11	CERAMIC	0.1uF		50V
C401	1-162-282-31	CERAMIC	100PF	10%	50V
C402	1-164-159-11	CERAMIC	0.1uF		50V
C412	1-136-177-00	FILM	1uF	5%	50V
C413	1-136-177-00	FILM	1uF	5%	50V
C998	1-162-306-11	CERAMIC	0.01uF	20%	16V
C999	1-162-306-11	CERAMIC	0.01uF	20%	16V
		< CONNECTOR >			
CN302	1-770-167-11	CONNECTOR, FFC/FPC 19P			
CN303	1-695-088-11	PIN, CONNECTOR (PC BOARD) 9P			
CN304	1-695-093-11	SOCKET, CONNECTOR 9P			
* CN305	1-568-871-11	SOCKET, CONNECTOR 29P			
CN402	1-770-158-21	HOUSING, CONNECTOR 7P			
					(SYSTEM CONTROL)

Ref. No.	Part No.	Description			Remark
		< DIODE >			
D301	8-719-024-99	DIODE 11ES2-NTA2B			
D302	8-719-024-99	DIODE 11ES2-NTA2B			
D303	8-719-024-99	DIODE 11ES2-NTA2B			
D304	8-719-024-99	DIODE 11ES2-NTA2B			
D305	8-719-024-99	DIODE 11ES2-NTA2B			
D306	8-719-024-99	DIODE 11ES2-NTA2B			
D307	8-719-024-99	DIODE 11ES2-NTA2B			
D308	8-719-024-99	DIODE 11ES2-NTA2B			
D309	8-719-934-22	DIODE HZS30-2L			
D310	8-719-109-81	DIODE RD4.7ESB2			
D313	8-719-987-63	DIODE 1N4148M			
D314	8-719-987-63	DIODE 1N4148M			
D315	8-719-024-99	DIODE 11ES2-NTA2B			
D316	8-719-024-99	DIODE 11ES2-NTA2B			
D317	8-719-024-99	DIODE 11ES2-NTA2B			
D318	8-719-024-99	DIODE 11ES2-NTA2B			
		< IC >			
IC301	8-759-231-53	IC TA7805S			
IC302	8-759-604-86	IC M5F7807L			
IC303	8-759-634-51	IC M5218AP			
IC304	8-749-923-04	IC TOTX178			
					(CD DIGITAL OPTICAL DIGITAL OUT)
IC305	8-759-256-72	IC PST994D			
IC306	8-759-231-53	IC TA7805S			
		< JACK >			
J301	1-770-272-11	JACK, PIN 2P (CD ANALOG OUT)			
		< JUMPER RESISTOR >			
JW406	1-247-807-31	CARBON	100	5%	1/4W
		< COIL >			
L348	1-412-473-21	INDUCTOR 0uH			
L401	1-412-473-21	INDUCTOR 0uH			
L402	1-412-473-21	INDUCTOR 0uH			
		< LEAD (WITH CONNECTOR) >			
* LP301	1-690-880-21	LEAD (WITH CONNECTOR)			
		< TRANSISTOR >			
Q301	8-729-140-97	TRANSISTOR 2SB734-34			
Q302	8-729-900-80	TRANSISTOR DTC114ES			
Q303	8-729-201-53	TRANSISTOR 2SA1015-GR			
Q304	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q305	8-729-119-76	TRANSISTOR 2SA1175-HFE			
		< RESISTOR >			
R101	1-249-421-11	CARBON	2.2K	5%	1/4W
R102	1-249-441-11	CARBON	100K	5%	1/4W
R103	1-249-421-11	CARBON	2.2K	5%	1/4W
R104	1-249-428-11	CARBON	8.2K	5%	1/4W
R105	1-249-429-11	CARBON	10K	5%	1/4W
R106	1-249-441-11	CARBON	100K	5%	1/4W
R107	1-249-421-11	CARBON	2.2K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R201	1-249-421-11	CARBON	2.2K	5%	1/4W
R202	1-249-441-11	CARBON	100K	5%	1/4W
R203	1-249-421-11	CARBON	2.2K	5%	1/4W
R204	1-249-428-11	CARBON	8.2K	5%	1/4W
R205	1-249-429-11	CARBON	10K	5%	1/4W
R206	1-249-441-11	CARBON	100K	5%	1/4W
R207	1-249-421-11	CARBON	2.2K	5%	1/4W
R301	1-249-425-11	CARBON	4.7K	5%	1/4W
R302	1-249-429-11	CARBON	10K	5%	1/4W
R303	1-249-417-11	CARBON	1K	5%	1/4W
R304	1-249-417-11	CARBON	1K	5%	1/4W
R305	1-247-807-31	CARBON	100	5%	1/4W
R306	1-249-437-11	CARBON	47K	5%	1/4W
R307	1-249-413-11	CARBON	470	5%	1/4W
R308	1-249-413-11	CARBON	470	5%	1/4W
R309	1-249-413-11	CARBON	470	5%	1/4W
R310	1-249-413-11	CARBON	470	5%	1/4W
R311	1-249-425-11	CARBON	4.7K	5%	1/4W
R312	1-249-429-11	CARBON	10K	5%	1/4W
R313	1-249-393-11	CARBON	10	5%	1/4W
R314	1-249-429-11	CARBON	10K	5%	1/4W
R315	1-249-393-11	CARBON	10	5%	1/4W
R316	1-249-429-11	CARBON	10K	5%	1/4W
R317	1-249-425-11	CARBON	4.7K	5%	1/4W
R318	1-249-429-11	CARBON	10K	5%	1/4W
R319	1-249-429-11	CARBON	10K	5%	1/4W
**********					
*	A-4699-278-A	PANEL BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
* CN601	1-568-852-11	SOCKET, CONNECTOR 9P			
		< LED >			
D601	8-719-032-86	LED SEL5420E (DISC 1)(GREEN)			
D602	8-719-032-86	LED SEL5420E (DISC 2)(GREEN)			
D603	8-719-032-86	LED SEL5420E (DISC 3)(GREEN)			
D604	8-719-032-98	LED SEL5820A (DISC 1)(AMBER)			
D605	8-719-032-98	LED SEL5820A (DISC 2)(AMBER)			
D606	8-719-032-98	LED SEL5820A (DISC 3)(AMBER)			
		< RESISTOR >			
R602	1-216-041-00	METAL CHIP	470	5%	1/10W
R603	1-216-045-00	METAL CHIP	680	5%	1/10W
R604	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R605	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R606	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R611	1-216-025-00	METAL GLAZE	100	5%	1/10W
R612	1-216-025-00	METAL GLAZE	100	5%	1/10W
R613	1-216-025-00	METAL GLAZE	100	5%	1/10W
R614	1-216-025-00	METAL GLAZE	100	5%	1/10W
R615	1-216-025-00	METAL GLAZE	100	5%	1/10W
R616	1-216-025-00	METAL GLAZE	100	5%	1/10W
R625	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
		< SWITCH >			
S601	1-762-196-21	SWITCH, TACT (EX-CHANGE)			
S602	1-762-196-21	SWITCH, TACT (SKIP)			
S603	1-762-196-21	SWITCH, TACT (DISC 1)			
S604	1-762-196-21	SWITCH, TACT (DISC 2)			
S605	1-762-196-21	SWITCH, TACT (DISC 3)			
S606	1-762-196-21	SWITCH, TACT (⏏ OPEN/CLOSE)			
**********					
*	1-663-324-11	RELAY BOARD			
		**********			
		< CONNECTOR >			
CN701	1-695-088-11	PIN, CONNECTOR (PC BOARD) 9P			
CN702	1-750-413-11	CONNECTOR, FFC/FPC 8P			
		< TRANSISTOR >			
Q701	8-729-900-80	TRANSISTOR DTC114ES			
		< RESISTOR >			
R703	1-249-435-11	CARBON	33K	5%	1/4W
R704	1-249-429-11	CARBON	10K	5%	1/4W
R705	1-249-417-11	CARBON	1K	5%	1/4W
**********					
*	1-663-322-11	SENSOR BOARD			
		**********			
		< IC >			
IC702	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391			
IC703	8-749-924-30	IC PHOTO REFLECTOR GP2S28			
		< RESISTOR >			
R701	1-249-416-11	CARBON	820	5%	1/4W
R702	1-249-407-11	CARBON	150	5%	1/4W
**********					
*	1-663-323-11	TABLE BOARD			
		**********			
		< CAPACITOR >			
C701	1-162-306-11	CERAMIC	0.01uF	20%	16V
C702	1-126-964-11	ELECT	10uF	20%	50V
C705	1-162-306-11	CERAMIC	0.01uF	20%	16V
		< CONNECTOR >			
CN703	1-750-413-11	CONNECTOR, FFC/FPC 8P			
CN704	1-506-469-11	PIN, CONNECTOR 4P			
		< DIODE >			
D701	8-719-109-69	DIODE RD3.6ES-B2			
		< IC >			
IC701	8-759-633-65	IC M54641L			
		< RESISTOR >			
R706	1-249-411-11	CARBON	330	5%	1/4W
R707	1-249-401-11	CARBON	47	5%	1/4W
**********					

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
8	1-777-862-11	WIRE (FLAT TYPE) (19 CORE)	
64	1-777-861-11	WIRE (FLAT TYPE) (29 CORE)	
66	1-777-860-11	WIRE (FLAT TYPE) (9 CORE)	
255	1-776-042-11	WIRE (FLAT TYPE) (8 CORE)	
* 262	1-452-879-11	MAGNET	
⚠305	8-848-367-11	OPTICAL PICK-UP KSS-213B/K-N	
306	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
M101	X-4917-523-4	BASE (OUTSERT) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M701	A-4660-586-A	MOTOR ASSY (TURN)	
M801	A-4660-926-A	MOTOR (CDM) ASSY (SPINDLE)	
S851	1-473-335-11	ENCODER, ROTARY	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#3	7-685-872-09	SCREW +BVTT 3X8 (S)	
#4	7-621-775-10	SCREW +B 2.6X4	
#5	7-621-255-15	SCREW +P 2X3	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Home A&V Products Company

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